DOCUMENT RESUME

ED 212 179 HE 014 459

AUTHOR McCarty, Dennis; And Others
TITLE The Campus Alcohol Education Service--An Analysis of First Year Evaluation Activities: Assessment Process and Impact.
INSTITUTION North Carolina Univ., Chapel Hill.
SPONS AGENCY National Inst. on Alcohol Abuse and Alcoholism (DHEW/PHS), Rockville, Md.
PUB DATE 28 Sep 79
GRANT 1-H84-AA-03845
NOTE 144p.
AVAILABLE FROM Campus Alcohol Education Service, 304 Steele Building 050A, University of North Carolina, Chapel Hill, NC 27514.

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS *Alcohol Education; Alcoholic Beverages; *College Students; Dormitories; *Drinking; Fraternities; Higher Education; Institutional Research; Peer Influence; Peer Teaching; *Prevention; Program Evaluation; Resident Assistants; Social Life; Sororities; *Student Attitudes; Student Characteristics; Student Problems; Workshops
IDENTIFIERS *University of North Carolina Chapel Hill

ABSTRACT

Results of an evaluation of the first year of operation of the Campus Alcohol Education Service at the University of North Carolina (UNC), Chapel Hill, are examined. The Student Alcohol Survey, which is primarily a program planning instrument and secondarily a source of information on program effects, was completed by 465 undergraduates. Responses were examined to identify current alcohol use and attitudes, and to test program assumptions about the relationships between alcohol use and alcohol-related problems. Additionally, a site-specific impact evaluation was the major source of data on program operation and program effectiveness. UNC focused on workshops conducted by peer educators and on the effects of these workshops on resident hall communities. Student Alcohol Survey responses are analyzed in relation to: alcohol use, alcohol problems, drinking situations, alcohol-related attitudes and beliefs, perceived social influences to drink, knowledge about alcohol, awareness of program efforts and interest in alcohol education, and demographic characteristics of respondents. Eleven workshops were developed by students enrolled in a class on the prevention of alcohol abuse, and the workshops were presented 37 times between March 20, 1979, and April 18, 1979. A total of 416 students participated, and heavier drinkers (five or more beers at a party) were well represented among the participants (40 percent). Women tended to have more positive evaluations of the workshops than men, and in general, the evaluation of the presentations and the presenters was moderately positive. (SW)

ED212179

The Campus Alcohol Education Service--
-An Analysis of First Year Evaluation Activities:
Assessment Process and Impact

Report Prepared For the National
Institute on Alcohol Abuse and Alcoholism
Division of Prevention

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Kenneth Mills
Campus Alcohol Edu. Ser.
Univ. of N. C.
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Dennis McCarty
Sherry Morrison
Kenneth C. Mills
Larry Mason

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Campus Alcohol Education Service
304 Steele Building 050A
University of North Carolina
Chapel Hill, N.C. 27514

September 28, 1979

HE014459

Not for citation without the written permission of the authors. Direct comments and correspondence to the first author. The preparation of this report was supported by Grant # 1 HB4 AA 03845 from the National Institute on Alcohol Abuse and Alcoholism.

TABLE OF CONTENTS

I. Summary..... 1

II. Student Alcohol Survey.....10
(prepared by S. Morrison, L. Mason, D. McCarty and K. Mills)

Method.....12

Results.....13

Need Identification.....15

Alcohol Consumption.....15

Alcohol-related Problems.....25

The Social Contexts of Drinking.....33

Responsible Alcohol Use.....37

Attitudes Toward Alcohol Use.....39

Social and Community Influences.....42

Alcohol Knowledge.....44

Alcohol Education.....47

Testing Assumptions.....51
(prepared by D. McCarty, S. Morrison, K. Mills, and L. Mason)

Alcohol Use and Alcohol-related Problems.....51

Factors that Predispose and Reinforce Alcohol Use54

Beliefs.....57

Contexts For Drinking.....62

Summary of Results.....65

Recommendations and Discussion.....72

III. Site Specific Impact Evaluation.....76

Description and Extent of Workshops.....76
(prepared by D. McCarty and K. Mills)

TABLE OF CONTENTS

Workshop Description.....76

Extent of Workshops.....78

Participant Response to Workshops.....80

Workshop Comparisons.....84

Attitude and Belief Change.....88

Summary of Results--Specific Impact Evaluation.....95

Effect of Workshops on Residence Hall Communities.....96
(prepared by D. McCarty, S. Morrison, K. Mills and L. Mason)

Evaluation Methodology.....96

Results.....99

Summation.....116

Discussion and Recommendations.....116

IV. Drinking in Residence Halls--Problems Resident Advisors Encounter.....119
(prepared by D. McCarty, K. Mills, and J. Osteen)

Method.....119

Results.....121

Discussion and Recommendations.....125

Summary

The evaluation of programs replicating the University of Massachusettes Alcohol Education Project is based on three primary sources of data: 1) the annual Student Alcohol Survey; 2) the site specific impact evaluation; and 3) the key actor interview. The Student Alcohol Survey is viewed primarily as a program planning instrument and secondarily as a source of information on program effects. Data collected with this instrument may also be used to test basic program assumptions. At the University of North Carolina, the Student Alcohol Survey was completed by 465 undergraduates. Their responses were examined to identify current alcohol use and attitudes, and to test program assumptions about the relationships between alcohol use and alcohol-related problems.

The site specific impact evaluation is the major source of data on program operation and program effectiveness. Each university designs and implements an evaluation of the program facet it does best or has the most interest in. Because the evaluation strategy is developed by each replication site, these data should provide the most sensitive measures of positive and negative program effects. The University of North Carolina focused on workshops conducted by peer educators and on the effects of these workshops on resident hall communities.

Key-actor interviews are designed to assess program operation and impact from the view of important individuals in the service community. This subjective measure is included because the qualitative data provided by interviews may be more sensitive to the political and pragmatic realities at each university.

These interviews have not yet been conducted at the University of North Carolina--Chapel Hill.

Important findings from the Student Alcohol Survey and the site specific impact evaluation are summarized on the following pages. Note, that because this was the first year of program operation, data on program impact are limited, and major emphasis has been placed on use of information of program planning, assessing program operation and testing program assumptions.

Student Alcohol Survey

Mailed to 646 students. Usable responses were obtained from 465 (72% return rate).

Alcohol Use

1. Less than 12% of fraternity and sorority members are nondrinkers or light drinkers.
2. Greeks have a larger proportion of heavy drinkers (48%) than other deomgraphic groups.
3. Students with a Greek affiliation tend to drink large amounts more frequently than students who are not members of Greek organizations.
4. Forty-two percent of UNC women are nondrinkers or light drinkers.
5. Males drink more beer and liquor than females and drink beer more often.
6. Consistent differences in alcohol use among classes and residence groupings were not found.

Alcohol-related problems

1. The problems that occurred most frequently were hangover, drove after drinking, and drove while drinking.

2. Males and Greeks had more hangovers than females and non-Greeks.

3. Sex and Greek affiliation differences were found on the driving measures. In addition, upper class students and off campus residents experienced more drinking and driving than freshmen and sophomores living on campus.

4. Indices of problem frequency and problem type suggest that males, Greeks, seniors, and off campus residents experience more problems than their comparison groups.

5. Greek members are more susceptible to problems than non-Greeks even when differences in alcohol consumption are controlled.

6. Men still tend to have more problems than women when differences in consumption are controlled.

7. Differences among classes and places of residence on problem measures tend to be explained by group differences in total alcohol use.

Social Contexts

1. Students who drink heavily drink in more places.

2. Greeks are most likely to drink in bars, while driving, and in fraternity houses.

3. Males drink in bars, while driving, and alone more often than females.

Responsible Use

1. Females tend to be more responsible drinkers than males.

2. Heavier drinkers tend to drink less responsibly.

Attitudes

1. Group differences in attitude toward alcohol and attitude toward drinking 1 or 2 beers could be explained by differences in total consumption.

2. Differences in attitude toward not drinking and attitude toward drinking 8 or more beers were primarily explained by differences in total consumption. However, sex has an additional contribution to these attitudes. Even when total consumption is controlled, females are more positive toward not drinking and more negative toward drinking eight or more beers.

3. When total consumption is controlled, Greek affiliation does not contribute independently to any of the attitude measures.

Social Influences

1. Measures of social influence to drink 1 or 2 beers at a party did not relate strongly to demographic characteristics or alcohol use.

2. Measures of social pressure to drink also did not relate strongly to alcohol use or demographic characteristics.

Alcohol Knowledge

1. Most students (83%) correctly classified alcohol as a depressant.

2. Slightly more than half of the sample knew that milk will slow the absorption of alcohol (51%), and that a driver can be arrested for driving while intoxicated with a blood alcohol concentration of greater than 100mg %.

3. Less than half the sample (46%) knew that cold showers and hot coffeewere ineffective methods of sobering up.

4. Only 26% of the respondents correctly reported that one 4oz glass of wine had as much alcohol as one 12oz beer.

5. Males answered more questions correctly than females, and drinkers knew more than nondrinkers.

Alcohol Education

1. Two-thirds of the students reported they would like to know more about alcohol and its effects.

2. Interest in a formal course, lectures and organized discussions was generally low. Students expressed greatest interest in informal discussions.

Use and Problems

1. Students who drink heavily have more alcohol-related problems than students who drink lightly.

2. "Responsible" drinkers tend to have fewer problems than less responsible drinkers even when differences in alcohol use are controlled.

Attitudes and Use

1. Individuals who drink heavily tend to have positive attitudes toward alcohol and drinking1 or 2 beers. Their attitude toward drinking 8 or more beers is least negative.

2. Individuals who do not drink have more positive attitudes

toward not drinking than drinkers.

3. Specific measures of attitude relate more strongly to measures of alcohol use than nonspecific attitude measures.

Beliefs and Use

1. Drinkers and nondrinkers tend to differ in their perceptions of the consequences of drinking one or two beers.

2. Heavy drinkers when compared to light drinkers and nondrinkers have more positive attitudes toward being drunk, being part of a group, and having a good time. Their evaluation of being in control is less positive and they are less negative about being asked to drink more.

Social Influences and Use

1. The measures of social influence do not relate strongly to measures of total alcohol use.

Contexts and Use

1. Students who drink heavily drink in more places.

2. The contexts that consistently contributed to increases in alcohol-related problems are drinking while driving, drinking alone, drinking in a fraternity house, and drinking in a bar.

3. Individuals who drink with meals tend to have fewer types of alcohol-related problems.

Site Specific Impact Evaluation

Workshops' Description and Extent

1. Eleven workshops were developed by students enrolled in a class on the prevention of alcohol abuse.
2. Between March 20, 1979 and April 18, 1979, the workshops were presented 37 times.
3. A total of 416 students participated (247 women and 137 men; 32 did not indicate their sex).
4. Heavier drinkers (5 or more beers at a party) were well represented among the participants (40%).

Participant Response

1. Women tended to have more positive evaluations of the workshops than men.
2. In general, the evaluation of the presentations and the presenters was moderately positive.

Workshop Comparisons

1. Multivariate and univariate tests indicate that participants perceived differences between workshops in terms of the quality of the presentation, the presenters and their own participation.
2. To provide feedback on the participant's evaluation of the workshops is a count of participants giving the most positive responses on the dimensions evaluating the presentation the presenters and self-participation is effective.

3. Workshops did not consistently alter attitudes, perceived social influences, or beliefs about heavy drinking. However, the evaluation of being drunk and the intention to drink at a party were changed slightly.

Effect of Workshops on Residence Hall Community

1. Three hundred and sixty residents on floors that had 0, 1 or 2 workshops were surveyed before the workshops. A different sample of 360 residents were sampled after the workshops. The first survey had a return rate of 59.5% (215 of 360). the second survey had a return rate of 37% (133 of 360).

2. Pre-post comparisons on measures of alcohol use and attitude found no indications of significant effects among residents because of exposure to workshops.

3. Residents on floors with two workshops were more aware of the workshops, were more likely to attend, and were more likely to have roommates who attended.

4. Floors that had two workshops evaluated the workshops as better and as more pleasant.

5. Heavy drinkers were more likely to participate in workshops than light drinkers and nondrinkers.

6. Both males and females were equally likely to participate in workshops.

7. Workshop participants evaluated workshops more positively, reported that they were more likely to plan on participating next year, and talked more about the workshops than nonparticipants.

8. Workshop participants were apparently more confident that the workshops did not influence either their behavior or the behavior of others.

9. Attitudes, beliefs, and the responsibility of alcohol use were not affected positively or negatively by workshop participation.

10. More speculatively, it appears that heavy drinkers participate in workshops because they are concerned about their own alcohol use.

Resident Advisor Survey

1. An informal survey of 22 RA's obtained data on alcohol-related problems in residence halls. RA response to the problems, and potential CAES services the RA's were most interested in.

2. The alcohol-related problems reported as occurring "once a month or more" by 50% or more of the responding RA's were "missing classes", "excessive noise", "litter", "lack of respect for others" and "vomiting".

3. In comparison to problems, direct responses to these problems occur much less frequently.

4. RA's reported greatest interest in workshops on hangovers, party planning and emergency treatment for alcohol overdose.

The evaluation of programs replicating the U Mass Alcohol Education Project is based on three primary sources of data: 1) the annual Student Alcohol Survey; 2) the site specific impact evaluation; and 3) the key-actor interview. The annual Student Alcohol Survey is viewed primarily as a program planning instrument and secondarily as a source of information on program effects. In addition, data collected with this instrument may also provide a mechanism for testing basic program assumptions. The major source of data on program effects is the site specific impact evaluation. That is, each university designs and implements an evaluation of the program facet it does best or has most interest in. Because it is tailored for the specific program offered by the site, this evaluation strategy should be the most sensitive to positive and negative program effects. Finally, the key-actor interviews permit an assessment of program operation and impact from the view of important individuals in the service community. Although a subjective measure, it may be more sensitive to program success and failure than the other more objective data sources.

Data generated by each of the evaluation strategies will be examined in subsequent portions of this report. Particular emphasis is placed on use of information for program planning and for testing program assumptions. Because this was the first year of program operation, data on program impact is limited.

Student Alcohol Survey

The Student Alcohol Survey (McCarty, Morrison, Bornstein & Mills, 1978) was designed to operationalize the major program assumptions of the U Mass program. Six content areas are included in the survey: 1) alcohol behavior--use, problems and drinking situations; 2) alcohol-related attitudes and beliefs; 3) perceived social influences to drink; 4) knowledge about alcohol; 5) awareness of program efforts and interest in alcohol education; and, 6) demographic characteristics. The information generated with these sets of items can be used to identify program needs, help plan service strategies and, by monitoring year to year changes in alcohol use

and attitudes, assess program impact on the campus community. In addition, because items were designed to operationalize program assumptions, tests of the assumptions can be made with survey data.

Analyses for need identification examine alcohol use, alcohol-related problems, attitudes and beliefs toward drinking, perceived social influences on drinking decisions and knowledge about alcohol. Because the emphasis is on identifying areas of greatest need, the major independent variable is demographic characteristic. Most of the analyses are univariate tests for group differences. Second stage analyses which rely on multivariate approaches are included when they elaborate or clarify the relationships indicated with univariate tests. These analysis have a pragmatic focus. That is, they simply attempt to determine the groups that have the greatest need for program services.

The testing of program assumptions relies primarily on multivariate analyses. Dustin, Kraft and Zapka (1979) have formalized the assumptions of the U Mass alcohol education program within the context of Green's (1978) model of health education. The Green model suggests that health or social problems are preceded by behavioral problems. The antecedents of problem behaviors are three sets of independent factors: 1) predisposing factors--attitudes, knowledge and beliefs; 2) enabling factors--availability of services or skills which foster or attenuate problem behaviors; and 3) reinforcing factors--social norms and support or nonsupport from service agencies (cf. Dustin et. al., 1979). Specifically then, Dustin et. al. (1979) suggest that alcohol use problems are a direct consequence of inappropriate or abusive styles of alcohol use. Attitudes and social norms directly predispose and reinforce alcohol use patterns and indirectly contribute to alcohol-related problems (cf. Dustin et. al. 1979). Thus there are a series of program assumptions that can be tested with survey data. First, a strong relationship between alcohol use and alcohol problems is expected and should be strongest among students who have poor alcohol use habits. Second, strong relationships are expected between alcohol use and attitudes, beliefs, and social influences. Moreover, each variable is hypothesized to contribute independently to the relationship. Finally, the influence of predisposing and reinforcing factors on alcohol-related problems is assumed to be indirect, that is through their influence on alcohol use. These hypothesized relationships are tested using multiple regression analysis.

Both the need identification and the testing of program assumptions contribute to suggestions for program planning. After the analyses are completed, therefore, findings are summarized and suggestions and recommendations are made for the application of these data to program planning.

Method

Sample and Procedure

A systematic sample of 658 full-time undergraduate students was obtained through a computer-generated listing of every twentieth undergraduate. The Student Alcohol Survey was mailed to each student on this list during the first week in November, 1978. On-campus students were requested to return their questionnaires via campus mail; business reply envelopes were provided for off-campus students. After two weeks, a telephone follow-up of nonrespondents was conducted. A second questionnaire was mailed to those students who could not be contacted by telephone (n=93) and to those students who indicated that they had misplaced the original questionnaire. As a result of the initial mailing and telephone follow-up, we determined that five of the students in the sample had dropped out of school prior to the distribution of the questionnaires, two were graduate students, and five were part-time undergraduates. Of the remaining 646 students, 465 responded to the questionnaire (72% return rate).

Survey Instrument

The Student Alcohol Survey (McCarty, et. al., 1978) was designed as a closed format questionnaire to obtain information on six content areas: 1) alcohol behavior (e.g., use, problems, drinking contexts, and responsibility of use); 2) attitudes and beliefs toward drinking; 3) perceived social influences; 4) knowledge about alcohol; 5) awareness of campus alcohol education and interest in alcohol education services; and 6) demographic characteristics of respondents. For more information on the construction of this

instrument see McCarty, Mills, Morrison and Bornstein (1978), and McCarty, Morrison and Bornstein (1978). A copy of the instrument is attached as Appendix A.

RESULTS

Assessment of potential bias

There are three sources of potential bias in our sample. The follow-up telephone calls to initial nonrespondents revealed that several students who were abstainers had failed to return the survey because they thought it applied only to drinkers. Although these students agreed to complete the questionnaire, we do not know how many of the nonrespondents who could not be contacted by telephone did not respond because they misunderstood the intent of the survey. Therefore our sample may slightly underestimate the proportion of nondrinkers in the population. A second source of potential bias resulted from the procedure used for the return of the questionnaires. Although on-campus students were requested to return their questionnaires via campus mail, the telephone follow-up revealed that between 20 and 30 were placed in U.S. mail. Since the return envelopes we provided for on-campus students lacked postage and sufficient addresses to be processed by the postal service, it is likely that these questionnaires were categorized by the Post Office as undeliverable. This source of bias predominantly affected the freshman and sophomore return rates since on-campus students are primarily from these two classes. Finally, we were unable to obtain current local addresses for 15 members of the sample. Therefore, these students were excluded from the survey. Despite these potential sources of bias, Table 1 shows that the sample is quite similar in its characteristics to the undergraduate population.

Table 1

Demographic Characteristics of Survey Sample and Student Population (in percent)

Characteristics	Sample (n=465)	Population (n=13,325)
Race		
White	93.0	91.5
Other	7.0	8.5
Sex		
Male	43.7	48.7
Female	56.3	51.3
Class		
Freshman	25.2	25.4
Sophomore	22.3	22.4
Junior	25.6	24.3
Senior/Fifth Year	26.9	27.9
Age		
17	1.5	0.5
18	22.6	18.7
19	21.1	21.4
20	24.8	22.8
21	20.8	22.0
22	5.3	8.2
23-30	3.5	5.7
31 and older	0.4	0.7
Place of Residence		
Granville Towers	13.7	10.6
North Campus	21.9	21.4
South Campus	22.6	20.7
Off Campus	41.9	47.3
Fraternal affiliation		
Member/Pledge	22.3	17.6
Non-member	77.7	82.4
Marital status		
Married	2.4	3.2
Single	97.6	96.8

Need Identification

To test for differences between groups and to identify population characteristics associated with high alcohol use, greater alcohol-related problems, and attitudes and social norms that predispose and reinforce alcohol abuse, demographic groups were examined with univariate analyses. Multivariate analysis are introduced when they expand on or clarify the relationships between demographic characteristics and the dependent variables.

Alcohol Consumption

There are two issues associated with alcohol use. First, how many students are drinkers and nondrinkers? Second, among those who drink, how much do they drink and how frequently?

For the purpose of this paper, students were classified as non-drinkers if they indicated that they did not consume any alcohol during the month prior to the survey. Using this classification system, 14% of the respondents were classified as abstainers. In addition, we classified drinkers into three types (light, moderate or heavy) (NIAAA, 1971, 1974, 1978). Respondents who reported drinking between one and ten drinks a month were categorized as light drinkers, those who drank between 11 and 55 drinks a month as moderate drinkers, and those who reported drinking 56 or more drinks a month as heavy drinkers. (A drink is the equivalant of one 12-ounce can of beer, one 4-ounce glass of wine, or 1.5 ounces of liquor.)

As is indicated in Table 2, the proportion of abstainers, light drinkers, moderate drinkers, and heavy drinkers varies by Greek affiliation, sex, class standing, and place of residence. Forty-eight percent of the respondents who are members of Greek organizations are classified as heavy drinkers, while 20% of the non-members fall in this category. A higher proportion of males than females are classified as heavy drinkers. As class standing increases, the

Table 2

Respondents in Each Drinking Category by Selected Characteristics (in percent)

Characteristics	n	Type of Drinker			
		Abstainer[a]	Light Drinker[b]	Moderate Drinker[c]	Heavy Drinker[d]
Total	459	14.2	21.4	37.6	26.8
Sex					
Female	258	16.7	25.6	39.9	17.8
Male	201	11.4	16.4	35.3	36.8
Class					
Freshman	116	18.1	20.7	42.2	19.0
Sophomore	103	17.5	20.4	37.9	24.3
Junior	118	14.4	18.6	38.1	28.8
Senior/5th Year	122	8.2	26.2	33.6	32.0
Fraternal Affiliation					
Member	103	1.9	9.7	39.8	48.5
Non-member	354	18.0	25.0	37.4	19.7
Place of Residence					
Granville Towers	63	17.5	19.0	36.5	27.0
North Campus	101	13.9	20.8	47.5	17.8
South Campus	103	23.1	22.1	32.7	22.1
Off Campus	190	8.9	22.5	36.1	32.5

[a]Ounces of ethanol consumed in one day = 0. Drinks less than once a month or never

[b]Ounces of ethanol consumed in one day = .01-.21. One drink a month up to 10 drinks a month

[c]Ounces of ethanol consumed in one day = .22-.99. Eleven to 55 drinks a month

[d]Ounces of ethanol consumed in one day = 1.0 or more. Fifty-six or more drinks a month

proportion of abstainers declines, and the proportion of respondents categorized as heavy drinkers increases. The percentage of respondents in each drinking category also varies by place of residence. Fewer off-campus residents are nondrinkers. A higher proportion of the respondents who live in Granville Towers or off-campus are classified as heavy drinkers. This finding may result, in part, from the fact that most upperclassmen live off-campus.

To determine how much alcohol student drinkers consume, respondents indicated, for the four-week period prior to the survey, 1) the frequency with which they drank beer, wine and liquor; 2)the amount of each beverage usually consumed at one time; 3) the maximum amount of each beverage consumed at one time; and 4) the frequency with which they drank the maximum amounts reported. One beer was defined as containing 12 ounces, one glass of wine as four ounces, and one drink of liquor as 1.5 ounces of distilled spirits. For each beverage, group differences in frequency of consumption per month, amount usually consumed per occasion, and total consumption per month were examined by conducting separate one-way analyses of variance using sex, class standing, fraternal affiliation and place of residence as independent variables. In addition, group differences in total ethanol consumption were explored.[1] If significant effects appeared for either class standing or place of residence, multiple comparisons using the Tukey procedure were performed. Only those respondents who reported drinking a particular beverage during the month prior to the survey were included in the analyses for that beverage, and only students who were classified as drinkers were included in the analyses of group differences in total ethanol consumption.

---

[1] It should be noted that one 12-ounce beer equals .48 ounces of ethanol; one four-ounce glass of wine equals .48 ounces of ethanol; and 1.5 ounces of 80 proof liquor equals .45 ounces of ethanol.

Beer Consumption. As is indicated in Table 3, males drank beer more frequently, consumed more beer per occasion, and drank more beers during the month prior to the survey than females. The same differences appeared between members of Greek organizations and non-members. That is, Greeks drank more beers per month, drank beer more frequently, and drank more beers per occasion than non-members. No significant differences appeared by place of residence or class standing.

Wine Consumption. Members of fraternities or sororities drank wine more frequently, drank more wine per occasion, and drank more wine per month than students who were not members. Off-campus students drank wine more often than the residents of South Campus or Granville Towers. Multiple comparisons using the Tukey procedure revealed no other significant differences by place of residence or class standing (see Table 4).

Liquor Consumption. Significant group differences appeared between members of Greek organizations and non-members in all analyses. That is, Greeks drank liquor more often, drank more drinks per occasion, and consumed more total drinks per month. When males drank liquor, they consumed more drinks per occasion than females. They also drank more liquor per month. While a significant effect for class standing occurred in the analysis examining group differences in the number of drinks usually consumed per occasion, multiple comparisons using the Tukey procedure revealed no significant differences among the groups (see Table 5).

Inspection of the percent of the sample drinking a beverage (column 1 in Tables 3, 4 and 5) suggests that more students drink liquor than beer or wine. This is true even for individuals who are under the legal age to purchase liquor (i.e., most freshmen and sophomores and many juniors). Beer, however, is the beverage drunk most often and in the largest amount.

Table 3

Drinkers' Consumption of Beer by Selected Characteristics

Characteristics	Proportion in Each Group Who Drink Beer	Number of Beer Drinkers	Number of Days Beer Consumed per Month			Number of Beers Usually Consumed per Occasion			Number of Beers Consumed per Month		
			M	SD	F	M	SD	F	M	SD	F
Sex					24.40**			17.56**			29.38**
Female	74.4	192	4.60	5.13		3.21	2.30		20.49	29.03	
Male	86.6	174	7.92	7.37		4.21	2.25		41.97	44.41	
Class					1.95			.33			1.52
Freshman	75.9	88	4.89	5.43		3.67	2.37		23.76	32.07	
Sophomore	77.7	80	5.90	6.55		3.75	2.47		30.37	42.77	
Junior	82.2	97	6.93	6.48		3.84	2.34		35.38	39.11	
Senior	82.8	101	6.80	7.21		3.51	2.18		32.43	39.57	
Fraternal Affiliation					9.92*			14.21**			10.56**
Member	96.1	99	8.01	6.96		4.42	2.26		42.09	42.37	
Non-member	75.0	267	5.50	6.20		3.42	2.30		26.48	36.31	
Place of Residence					2.47			1.15			2.08
Granville Towers	79.4	50	5.84	6.30		4.20	2.10		32.00	39.29	
North Campus	80.2	81	4.84	5.60		3.43	2.86		22.07	33.79	
South Campus	71.2	74	5.79	5.78		3.70	2.41		29.79	35.75	
Off Campus	84.3	161	7.14	7.17		3.65	2.21		35.06	41.43	

* $p < .01$
** $p < .001$

$$S^2 = \frac{\Sigma(y-\bar{y})^2}{n-1} = \frac{\Sigma y^2 - \frac{(\Sigma y)^2}{n}}{n-1} = \frac{\Sigma y^2 - n\bar{y}^2}{n-1}$$

Table 4

Drinkers' Consumption of Wine by Selected Characteristics

Characteristics	Proportion in Each Group Who Drink Wine	Number of Wine Drinkers	Number of Days Wine Consumed per Month			Number of Glasses of Wine Usually Consumed per Occasion			Number of Glasses of Wine Consumed per Month		
			M	SD	F	M	SD	F	M	SD	F
Sex					.02			.19			.04
Female	79.8	206	2.05	2.72		2.05	1.93		6.74	11.81	
Male	79.1	159	2.08	2.18		2.14	2.00		6.97	8.76	
Class					2.68*			.57			.86
Freshman	70.7	82	1.71	3.28		1.88	2.00		6.01	15.09	
Sophomore	80.6	83	1.74	1.85		2.10	2.18		6.07	8.95	
Junior	84.7	100	2.06	1.70		2.26	1.91		6.82	7.63	
Senior/5th Year	82.0	100	2.62	2.81		2.10	1.79		8.20	9.88	
Fraternal Affiliation					6.50*			13.32***			10.89***
Member	93.2	96	2.54	1.93		2.76	2.17		9.73	9.72	
Non-member	75.6	269	1.89	2.65		1.86	1.82		5.81	10.69	
Place of Residence					5.07**			1.29			3.67*
Granville Towers	76.2	48	1.36	1.56		1.75	2.37		4.47	6.91	
North Campus	82.2	83	2.04	3.23		2.16	1.95		6.78	14.87	
South Campus	71.1	74	1.45	1.35		1.86	1.97		4.32	6.09	
Off Campus	83.8	160	2.56	2.35		2.27	1.81		8.67	10.16	

* $p < .05$
** $p < .01$
*** $p < .001$

Table 5

Drinkers' Consumption of Liquor by Selected Characteristics

Characteristics	Proportion in Each Group Who Drink Liquor	Number of Liquor Drinkers	Number of Days Liquor Consumed per Month			Number of Drinks Usually Consumed per Occasion			Number of Drinks Consumed per Month		
			M	SD	F	M	SD	F	M	SD	F
Sex					2.46			16.32***			8.88**
Female	84.1	217	2.58	2.35		2.61	1.90		10.30	12.53	
Male	86.6	174	3.04	3.26		3.54	2.51		15.11	18.09	
Class					.25			2.86*			1.43
Freshman	79.3	92	2.68	2.78		2.77	2.18		10.63	13.07	
Sophomore	81.6	84	2.71	2.20		3.30	2.20		12.68	15.31	
Junior	86.4	102	2.99	2.94		3.42	2.67		14.89	16.96	
Senior/5th Year	92.6	113	2.74	3.09		2.67	2.21		11.53	15.73	
Fraternal Affiliation					10.89***			29.92***			14.90***
Member	99.2	102	3.64	3.18		4.00	2.05		17.97	17.66	
Non-member	81.2	289	2.49	2.59		2.68	2.20		10.49	14.07	
Place of Residence					.38			2.32			2.09
Granville Towers	79.4	50	2.91	2.36		3.76	2.53		15.20	17.77	
North Campus	86.1	87	2.51	2.24		2.82	1.94		9.29	10.33	
South Campus	76.9	80	2.93	3.25		2.82	2.34		14.15	17.87	
Off Campus	91.1	174	2.82	2.95		3.02	2.21		12.44	15.47	

* $p < .05$
** $p \leq .01$
*** $p < .001$

Total Ethanol Consumption. The critical molecule in beer, wine and spirits is ethanol. Although the concentration of ethanol varies in each beverage group, multiplication of concentration and total consumption provides an estimate of the total ethanol for each beverage. Total ethanol consumption, then, is the sum of the ethanol obtained from each beverage group. An examination of estimated total ethanol consumption indicates, in agreement with the analysis of each beverage group, that males consumed more ethanol than females, and that fraternity and sorority members drank more than nonmembers. See Table 6 for these analyses.

Finally, the conversion of beer, wine and liquor to absolute ethanol permits an assessment of the contribution of each beverage group to total ethanol intake. On the average, 43% of the ethanol comes from beer, 36% from liquor and 21% from wine. Males and heavy drinkers obtain more than half of their total ethanol from beer (53%) and little from wine (14%). In contrast, women and light drinkers receive the majority of their ethanol from liquor (40%).

The univariate analyses of ethanol consumption are supported by multiple regression analysis. Univariate analyses suggested that only sex and Greek affiliation were consistently related to differences in consumption. The multivariate analyses suggest a similar conclusion. Table 7 contains the multiple regression analysis and suggests that, when differences in place of residence, year in school, and sex are controlled statistically, Greeks drink more than non-Greeks. The magnitude of the difference, indicated by the unstandarized regression coefficient, is nearly 20 ounces of ethanol per month. One beer contains approximately 0.5 ounces of ethanol, so the average Greek drinks an equivalent of 40 beers per month more than the average nonmember. (The 20 ounces is greater than the difference between the means in Table 6 because the multiple regression analysis controls differences due to sex, class, and residence statistically.) In a similar fashion, the average UNC male drinks about 12 ounces of ethanol more each month than the average UNC female. However, despite these significant effects, the square of the mul-

Table 6

Drinkers' Mean Ethanol Consumption During the Month Prior to the Survey by Selected Characteristics

Characteristics	n	Ounces of Ethanol Consumed M	SD	F	p
Sex				25.60	.001
Female	215	19.68	22.03		
Male	178	33.44	30.20		
Class				2.24	.083
Freshman	95	20.65	23.69		
Sophomore	85	25.74	28.65		
Junior	101	30.55	28.32		
Senior	112	26.31	26.34		
Fraternal Affiliation				23.43	.001
Member	101	37.63	29.36		
Non-member	292	21.85	24.79		
Place of Residence				2.11	.098
Granville Towers	52	27.12	24.51		
North Campus	87	20.02	27.29		
South Campus	80	25.32	26.12		
Off Campus	174	28.76	28.00		

Note. Ounces of ethanol consumed per month was calculated on the following basis:
One 12 ounce beer = .48 ounces of ethanol
One 4 ounce glass of wine = .48 of ethanol
1.5 ounces of 80 proof liquor = .45 ounces of ethanol

Table 7

Multiple Regression Analysis of Total Ethanol Consumption by Demographic Measures

Predictor variables	Unstandardized Regression Coefficient	Standardized Regression Coefficient	F(1, 60)	Multiple Correlation	Simple Correlation
Sex	-12.11	-0.226	24.45**	0.234	-0.234
Class in college	- 0.53	-0.023	0.14	0.245	0.110
Residence:					
North campus	- 3.97	-0.061	1.10	0.249	-0.095
Granville	0.25	0.003	0.00	0.249	0.015
South campus	-2.42	-0.039	0.39	0.259	-0.061
Greek status	19.71	0.310	45.01**	0.395	0.315

**$p < .01$

tiple correlation suggests that the characteristics of sex, and Greek affiliation can explain only approximately 16% of the variation in alcohol consumption ($R=.395$, $R^2=.16$). Clearly, to understand differences in how much people drink, variables other than demographic characteristics must be considered.

Alcohol-related Problems

Respondents were asked to indicate the number of times during the four weeks prior to the administration of the survey they had experienced each of the following ten alcohol-related problems: 1) having a hangover; 2) feeling nauseous or vomiting from drinking; 3) driving after having several drinks; 4) drinking while driving; 5) missing classes becuase of a hangover; 6) passing out from drinking too much; 7) being criticized for drinking; 8) getting into a fight after drinking; 9) injuring self or others while drinking; and 10) not remembering what happened while drinking. Two indices were formed from these items, number of different problems experienced (minimum = 0, maximum = 10) and frequency of problem occurrence (minimum = 0, maximum = 90).

Baseline Rates. Each problem was examined to determine how frequently it occurred and if there were group differences in rate. As is indicated in Table 8, a significantly higher proportion of males than females experienced one or more occurrences of the following alcohol-related problems: 1) having a hangover, 2) driving after drinking, and 3) drinking while driving. Forty-five percent of the male respondents reported that they drove after drinking. Two of the ten problems, driving after drinking and drinking while driving, were experienced by a significantly higher percentage of seniors and juniors than sophomores or freshmen (see Table 8). Almost half of the upperclass respondents drove after drinking. As in indicated in Table 9, a significantly greater proportion of Greeks than non-Greeks reported experiencing seven of the ten problems. (The only non-significant differences occurred for the three items which assessed the occurence of vomiting after drinking, being criticized because of drinking,

Table 8

Percentage of Respondents Reporting One or More Occurrences of Each Alcohol-related Problem During the Month Prior to the Survey by Sex and Class Standing

Problem	Sex				Class Standing					
	Male (n=191)	Female (n=249)	χ^2	p<	Freshman (n=110)	Sophomore (n=100)	Junior (n=113)	Senior (n=117)	χ^2	p<
Hangover	51.8	29.7	21.24	.001	31.8	37.0	40.7	47.0	5.81	.121
Became sick	18.3	16.5	.15	.701	14.5	21.0	16.8	17.1	1.56	.668
Drove after drinking	45.5	26.1	17.23	.001	17.3	24.0	49.6	45.3	36.68	.001
Drank while driving	34.6	14.1	24.54	.001	14.5	14.0	30.1	31.6	17.16	.001
Missed class with hangover	26.2	18.1	3.73	.053	20.0	18.0	23.9	23.9	1.66	.646
Passed out	14.1	10.4	1.07	.302	12.7	7.0	11.5	16.2	4.42	.219
Were criticized because of drinking	10.5	5.2	3.57	.058	10.0	3.0	7.1	9.4	4.55	.208
Fought after drinking	4.7	3.2	.31	.576	1.8	5.0	5.3	3.4	2.29	.515
Injured self or others while drinking	6.8	4.4	.78	.378	3.6	5.0	3.5	9.4	5.08	.166
Forgot what happened while drinking	23.6	19.7	.75	.386	26.4	21.0	16.8	21.4	3.04	.386
Thought you might have a drinking problem	13.6	4.8	9.51	.002	10.9	4.0	7.1	12.0	5.44	.143
Helped a friend who became sick from drinking	34.0	26.9	2.28	.131	30.0	32.0	31.0	27.4	.63	.889
Observed drunk students damage property	41.9	31.3	4.79	.028	39.1	39.0	34.5	31.6	1.93	.587

Table 9

Percentage of Respondents Reporting One or More Occurrences of Each Alcohol-related Problem During the Month Prior to the Survey by Fraternal Affiliation and Place of Residence

Problems	Fraternal Affiliation				Place of Residence					
	Member (n=97)	Non-member (n=343)	χ^2	p<	Granville Towers (n=61)	North Campus (n=95)	South Campus (n=103)	Off Campus (n=181)	χ^2	p<
Hangover	66.0	31.8	35.65	.001	36.1	36.8	33.0	45.3	4.95	.175
Became sick	21.6	16.0	1.30	.244	16.4	17.9	18.4	16.6	.22	.974
Drove after drinking	63.9	26.2	45.82	.001	24.6	17.9	23.3	53.0	47.46	.001
Drank while driving	40.2	18.1	19.71	.001	16.4	12.6	18.4	33.1	19.03	.001
Missed class with hangover	47.4	14.3	47.11	.001	19.7	21.1	15.5	26.0	4.43	.219
Passed out	25.8	8.2	20.50	.001	9.8	10.5	8.7	15.5	3.55	.318
Were criticized because of drinking	9.3	7.0	.29	.593	8.2	9.5	3.9	8.3	2.68	.444
Fought after drinking	8.2	2.6	5.01	.025	6.6	0.0	2.9	5.5	N.A.[a]	
Injured self or others while drinking	13.4	3.2	13.33	.001	6.6	5.3	1.0	7.7	N.A.[a]	
Forgot what happened while drinking	28.9	19.2	3.62	.057	24.6	20.0	21.4	21.0	.50	.919
Thought you might have a drinking problem	14.4	7.0	4.40	.036	11.5	6.3	6.8	9.9	2.11	.551
Helped a friend who became sick from drinking	40.2	27.1	5.56	.018	31.1	32.6	33.0	26.5	1.84	.606
Observed drunk students damage property	50.5	31.8	10.74	.001	47.5	30.5	35.9	34.8	4.88	.181

[a]Expected cell frequency of one or more cells is less than five. Therefore, a chi square statistic cannot be reliably interpreted.

and not remembering what happened while drinking.) Sixty-four percent of the respondents who are fraternity or sorority members drove after drinking, and 47% missed class because of hangovers. Finally, when we examine the relationship between place of residence and occurrence of each problem, we note that a smaller percentage of the residents of North Campus, South Campus, or Granville Towers than the students who live off campus drove after drinking or drank while driving.

In addition to reporting the number of different problems experienced and the frequency with which they were experienced, students were asked to indicate the number of times they thought they might have a drinking problem. A higher proportion of males than females and a higher proportion of the members of fraternities or sororities than non-members thought they might have a drinking problem (see Tables 8 and 9)

The Student Alcohol Survey contains two items which examine the extent to which respondents have observed others experiencing alcohol-related problems. The first item asks students to indicate the number of times in the last four weeks that they helped a friend who became sick from drinking. A higher proportion of fraternity or sorority members than non-members reported having this experience. While no significant differences were found by sex, class standing, or place of residence, it is interesting to note that approximately thirty percent of the respondents had helped a friend who became sick from drinking at least once during the four weeks prior to the survey. The second item related to problem occurrence among other students asks respondents to indicate the number of times in the four weeks prior to the survey that they observed drunk students damage property. Forty-seven percent of the respondents who lived in Granville Towers and half of the fraternity or sorority members had observed intoxicated students damaging property (see Tables 8 and 9).

Problem Indices. In addition to an inspection of each problem, the indices of problem frequency and problem types were also tested for univariate group differences and for multivariate differences controlling for differences in total ethanol consumption. In order to determine if the number of different problems experienced varied by sex, fraternal affiliation, class standing, or place of residence, four one-way ANOVAS were conducted. The analyses included all respondents with complete data. Results indicated that males experienced significantly more types of problems than females, and that members of Greek organizations experienced significantly more problems than non-members. Since significant effects were also found for place of residence and class standing, multiple comparisons using the Tukey procedure were conducted. Results indicated that off-campus residents reported having a greater number of alcohol-related problems than the residents of North Campus or South Campus. However, no significant differences among freshmen, sophomores, juniors or seniors were revealed by the Tukey procedure (see Table 10).

Similar analyses were conducted in order to ascertain whether the frequency with which alcohol-related problems are experienced varied by sex, fraternal affiliation, class standing, or place of residence. All respondents with complete data were included. Significant effects were found in each of the four ANOVAS. Males experienced alcohol-related problems more frequently than females. Nonmembers and members of fraternities and sororities had problems more frequently than nonmembers. Multiple comparisons using the Tukey method indicated that the respondents who lived off-campus experienced alcohol-related problems more frequently than North Campus or South Campus residents, and that seniors had a significantly higher frequency of problem occurrence than sophomores (see Table 10).

The univariate analyses of number of different problems and total problem frequency suggest that differences exist for sex, place of residence, class and Greek affiliation. However, these analyses did not control for the previously noted differences in total alcohol consumption. It is possible that the differences in occurrence of alcohol-related problems is due simply to differences in the quantity each group drinks. Multiple regression analysis can control for this influence and determine if differences exist that cannot be explained by alcohol consumption.

Table 10

Extent to which Respondents Experienced Alcohol-related Problems During the Month Prior to the Survey by Selected Characteristics

Characteristics	n	Number of Different Problems Experienced				Frequency of Problem Occurrence			
		M	SD	F	p	M	SD	F	p
Sex				18.66	.001			19.80	.001
Female	249	1.47	2.08			2.68	5.45		
Male	191	2.36	2.18			5.62	7.78		
Class				3.14	.025			3.65	.013
Freshman	110	1.53	2.07			3.35	6.90		
Sophomore	100	1.55	1.90			2.74	4.64		
Junior	113	2.05	2.08			3.97	5.87		
Senior/5th Year	117	2.25	2.46			5.55	8.38		
Fraternal Affiliation				43.70	.001			26.63	.001
Member	97	3.25	2.45			8.02	9.58		
Non-member	343	1.47	1.90			2.80	5.11		
Place of Residence				4.92	.002			5.18	.002
Granville Towers	61	1.69	2.05			3.44	6.03		
North Campus	95	1.52	1.88			2.54	5.03		
South Campus	103	1.47	1.95			3.01	5.92		
Off Campus	181	2.32	2.38			5.41	7.81		

Note: Number of different problems experienced: minimum = 0, maximum = 10
Frequency of problem occurrence: minimum = 0, maximum = 90

Table 11

Multiple Regression Analysis of Total Problems by Total Alcohol Consumption and Demographic Variables

Predictor Variables	Regression Coefficient	Standardized Regression Coefficient	F(1,430)	Multiple Correlation	Simple Correlation
Total absolute ethanol	0.15	0.580	219.88**	0.649	0.649
Sex	-1.28	-0.093	5.95*	0.654	-0.232
Class in college	-0.29	-0.047	0.93	0.656	0.137
Residence:					
North campus	-1.74	-0.104	4.87*	0.657	-0.120
Granville	-1.72	-0.087	3.80	0.658	-0.031
South campus	-1.57	-0.097	3.82	0.664	-0.084
Fraternal affiliation	1.96	0.119	9.28**	0.673	0.320

* $p < .05$
** $p < .01$

Table 12

Multiple Regression Analysis of Types of Problems by Total Alcohol Consumption and Demographic Variables

Predictor Variables	Regression Coefficient	Standardized Regression Coefficient	F(1,430)	Multiple Correlation	Simple Correlation
Criterion is Number of Problem Types					
Total absolute ethanol	+0.05	0.571	212.43**	0.643	0.643
Sex	-0.32	-0.072	3.63	0.647	-0.211
Class in college	-0.05	-0.024	0.23	0.651	-0.154
Residence:					
North campus	-0.44	-0.084	3.13	0.651	-0.105
Granville	-0.43	-0.069	2.37	0.652	-0.024
South campus	-0153	-0.103	4.27*	0.658	-0.112
Fraternal affiliation	0.74	0.143	13.23**	0.671	0.345

* p < .05
**p < .01

The analyses in Tables 11 and 12 indicate clearly that the major determinate of the number of problems and types of problems is total ethanol consumption. As ethanol consumption increases, individuals experience more kinds and types of problems. However, independent of the amount a person drinks, fraternity and sorority members experience more kinds of negative consequences more often. Other demographic variables do not consistently contribute to problem occurrence.

The Social Contexts for Drinking

Students were asked to indicate how frequently they drank in various social contexts, e.g., a bar in town, a residence hall party, while riding in a car, with meals, alone, in an off-campus apartment, in a restaurant, in a fraternity house, and in their parents' home. Separate one-way analyses of variance were conducted for each context using sex, class standing, fraternal affiliation, and place of residence as independent variables.

Males reported drinking more frequently than females in all of the social contexts except restaurants. Class standing had a significant effect on the frequency with which drinking occurred in two social contexts, a residence hall party and an off-campus apartment, i.e., freshmen drank more frequently at residence hall parties while upperclassmen drank more frequently at off-campus apartments (see Table 13). This finding reflects the fact that freshmen are required to live in residence halls while many upperclassmen live off campus. As is indicated in Table 14, members of Greek organizations drank more frequently in bars or in fraternity houses than non-members.

Multiple regression analyses of each social context suggest that students who drink heavily drink in more places. Total ethanol consumption is the strongest predictor of drinking in any of the environments listed. After the influence of total consumption is removed, Greeks are still more likely than non-Greeks to drink in bars, and in fraternity houses. Similarily, male students are more likely than females to drink in bars, at residence hall parties, in cars, and when alone. Students living in resident halls are more likely to drink at

Table 13

Mean Number of Days per Month Respondents Consume Alcohol in Specified Social Contexts by Sex and Class Standing

	Sex					Class Standing								
	Female (n=211)		Male (n=173)			Freshman (n=93)		Sophomore (n=84)		Junior (n=97)		Senior/5th Year (n=110)		
Social Contexts	M	SD	M	SD	F	M	SD	M	SD	M	SD	M	SD	F
Bar in town	2.09	3.29	4.25	5.43	20.88***	2.92	5.13	2.86	3.62	3.29	4.57	3.13	4.57	.17
Residence hall party	1.03	1.34	2.02	3.90	10.05**	2.48	3.56	1.74	2.37	1.42	3.46	.46	.92	9.40***
Riding in a car	.73	1.34	1.90	4.12	12.96***	1.38	3.65	1.31	3.64	1.11	2.25	1.25	2.38	.13
With meals	1.47	2.86	2.27	4.36	4.37*	1.81	4.99	1.48	2.33	1.49	2.15	2.42	4.08	1.53
Alone	.24	.77	1.39	3.76	15.52***	.65	3.05	.54	3.06	.76	2.11	1.02	2.37	.61
Off-campus apartment	1.43	2.69	2.77	4.99	10.18**	.65	2.92	.96	1.31	2.69	4.77	3.45	4.62	12.49***
Restaurant	1.28	2.10	1.63	2.94	1.74	1.54	3.77	1.18	1.23	1.46	2.26	1.53	2.13	.38
Fraternity house	1.10	2.25	2.84	6.38	11.56***	1.59	4.21	1.70	3.18	2.10	4.85	2.10	5.75	.31
Parents' home	1.02	2.56	1.97	4.99	5.11*	.97	3.43	.95	1.37	1.53	3.33	2.17	5.54	2.25

* $p < .05$
** $p < .01$
*** $p < .001$

Table 14

Mean Number of Days per Month Respondents Consume Alcohol in Specified Social Contexts by Fraternal Affiliation and Place of Residence

	Fraternal Affiliation					Place of Residence								
	Member (n=97)		Non-member (n=287)			North Campus (n=87)		Granville Towers (n=52)		South Campus (n=78)		Off Campus (n=167)		
Social Contexts	M	SD	M	SD	F	M	SD	M	SD	M	SD	M	SD	F
Bar in town	4.20	4.84	2.68	4.34	7.51*	2.26	3.49	3.11	3.35	3.19	5.46	3.40	4.79	1.25
Residence hall party	1.20	3.10	1.57	2.75	1.08	1.73	2.05	2.41	2.16	2.55	4.16	.55	2.29	12.89**
Riding in a car	1.68	3.50	1.11	2.79	2.07	.69	1.31	1.53	4.20	1.58	4.21	1.32	2.43	1.49
With meals	1.90	2.43	1.81	3.96	.07	1.78	3.95	1.04	1.42	1.78	4.54	2.13	3.45	1.21
Alone	1.00	3.46	.68	2.31	.72	.24	.51	.81	3.95	.81	3.32	1.00	2.43	1.60
Off-campus apartment	2.51	4.73	1.87	3.64	1.46	.57	.75	.57	1.09	.95	3.22	3.75	5.02	21.99**
Restaurant	1.67	1.64	1.36	2.75	1.74	1.19	2.00	1.08	1.19	1.56	3.73	1.63	2.35	1.01
Fraternity house	5.92	7.33	.52	1.95	51.41**	1.33	3.17	1.42	2.20	1.26	4.21	2.61	5.87	2.39
Parents' home	1.98	3.90	1.27	3.85	2.43	.78	1.42	1.23	3.94	1.29	3.83	1.94	4.64	1.88

* $p < .01$
** $p < .001$

Table 15

Standardized Regression Coefficients of Demographic Groups That Contribute Significantly ($p < .05$) to the Prediction of Drinking in Selected Social Contexts

	Context						
Predictor Variable	Bar	Residence Hall	Car	Meals	Alone	Off campus Apartment	Fraternity House
Total ethanol	.58	.36	.57	.52	.41	.40	.30
Class		-.15	-.12			.13	-.19
Sex	-.12	-.11	-.08		-.19		
Greek affiliation	.09						.62
North Campus		.38	-.11			-.32	
South Campus		.32		-.08		-.36	-.11
Granville		.34	-.09	-.11	-.10	-.33	
Multiple correlation	.67	.64	.62	.55	.51	.68	.77

hall parties and less likely to drink at off-campus parties. In addition, South campus residents are less likely to drink with meals or at fraternity houses. Finally, upperclass students are less likely to drink in residence halls, fraternity parties and in cars but more likely to drink at an off-campus apartment. These analyses are summarized in Table 15 .

Responsible Alcohol Use

In order to assess the degree to which students evidence responsible alcohol use, respondents were asked to indicate how likely they were to: 1) provide an activity other than alcohol as the primary focus of parties which they hosted; 2) provide foods high in protein if serving alcohol; 3) provide nonalcoholic drinks at their parties; 4) offer a substitute drink, e.g., coffee, to someone who had too much to drink; 5) provide transportation or overnight accomodations for those unable to drive safely after drinking; 6) tell a friend that there is nothing funny about being drunk; and 7) set limits on how many drinks they were going to have on a night out or at a party. Each of the seven items were answered on a seven-point scale ranging from very unlikely (1) to very likely (7). The answers were summed to form an index of responsible use (minimum score = 7, maximum score = 49).

Four one-way analyses of variance were conducted to determine if groups differ in the degree to which they use alcohol responsibly. Results of these analyses suggest that females are generally more responsible in their use of alcohol than males, and that students who are not members of fraternities or sororities exhibit more responsible behavior with regard to alcohol use than members. Multiple comparisons using the Tukey procedure indicated that off-campus students exhibited less responsible alcohol-related behavior than the residents of North Campus (see Table 16).

Table 16

Responsibility of Alcohol Use by Selected Characteristics

Characteristics	n	Responsibility of Alcohol Use M	SD	F
Sex				41.34**
Female	254	37.93	8.64	
Male	198	32.47	9.17	
Class				2.23
Freshman	113	36.37	9.85	
Sophomore	103	37.01	9.05	
Junior	117	34.26	8.83	
Senior/5th Year	119	34.73	9.16	
Fraternal Affiliation				12.25**
Member	102	32.67	9.53	
Non-member	350	36.37	9.04	
Place of Residence				3.35*
North Campus	98	37.22	8.40	
Granville Towers	62	34.74	10.32	
South Campus	104	36.87	9.22	
Off Campus	188	34.18	9.20	

Note. The range of the responsibility of use scale is 7 to 49. Higher scores indicate more responsible use.

* $p < .05$
** $p < .001$

Analysis of the responsibility score with multiple regression techniques suggest that, when the variation in responsiblity score due to total alcohol consumption is controlled, the only demographic variable that contributes to the score is sex. Women, generally, score four points higher on the responsibility scale than men.

Attitudes Toward Alcohol Use

Many of the workshops developed by the alcohol education program attempt to change attitudes toward drinking. The assumption is that attitudes are a determinate of how alcohol is used. If positive attitudes toward heavy or abusive use of alcohol can be made less positive or if negative or indifferent attitudes toward moderate alcohol use can be made more positive, a moderation of alcohol use is expected. An analysis of attitudes is therefore an important step in program development.

Respondents were asked to evaluate 1) alcohol, 2) drinking only soft drinks at a party where most others are drinking beer, 3) drinking one or two beers at a party where most others are drinking beer, and 4) drinking eight or more beers at a beer party on three bipolar dimensions, bad-good; unpleasant-pleasant; and harmful-beneficial. Responses for each of the these dimensions could vary between +3 and -3. Scores for each dimension were summed to form an index ranging from -9 to +9. (Negative scores indicate disapproval, and positive scores suggest approval.) In order to determine if selected groups differ in their attitudes toward alcohol use, separate one-way analyses of variance were conducted for each attitude index using sex, class standing, place of residence, and fraternal affiliation as independent variables. Multiple regression analyses, then, tested for group differences and controlled for differences in alcohol consumption. The analyses included drinkers and nondrinkers with complete data.

Attitude Toward Alcohol. Results indicated that males held more positive attitudes toward alcohol use than females, and that members of Greek organizations regarded alcohol use more positively than non-members. No significant differences appeared by place of residence. Multiple comparisons using the Tukey

Table 17

Respondents' Alcohol-related Attitudes by Selected Characteristics

Characteristics	n	Attitude Toward Alcohol M	SD	F	Not Drinking M	SD	F	Drinking 1-2 Beers M	SD	F	Drinking 8+ Beers M	SD	F
Sex				7.84**			23.04***			8.88**			40.07***
Female	249	-.45	4.18		3.53	3.56		1.07	3.89		-5.71	3.61	
Male	195	.65	4.06		1.81	3.88		2.21	4.10		-3.34	4.14	
Class				3.62**			1.97			3.47*			3.64**
Freshman	112	-1.04	4.34		3.43	4.13		.76	3.79		-5.63	3.85	
Sophomore	101	.07	4.19		2.83	3.70		1.38	4.31		-4.79	3.95	
Junior	112	.52	4.21		2.22	3.72		1.64	4.33		-4.31	3.84	
Senior/5th Year	119	.54	3.76		2.63	3.59		2.43	3.53		-4.00	4.27	
Fraternal Affiliation				32.38***			1.61			41.73***			14.82***
Member	98	1.64	2.75		2.37	3.50		3.49	3.09		-3.35	3.81	
Non-member	346	-.43	4.37		2.89	3.88		1.03	4.09		-5.05	4.00	
Place of Residence				2.21			1.43			5.15**			4.43**
Granville Towers	61	-.34	4.60		2.90	4.20		1.51	4.25		-4.69	4.07	
North Campus	98	-.21	4.13		3.43	3.49		1.26	3.61		-5.45	3.60	
South Campus	102	-.57	4.63		2.60	4.25		.49	4.52		-5.30	3.91	
Off Campus	183	.62	3.68		2.48	3.53		2.36	3.71		-3.90	4.16	

Note. The range for each attitude scale is -9 to +9. Negative scores indicate disapproval and positive scores suggest approval.

* $p < .05$
** $p < .01$
*** $p < .001$

procedure indicated that freshmen regarded alcohol use more negatively than either juniors or seniors (see Table 10). However, the multiple regression analysis suggested that all of the differences in attitude toward alcohol could be explained by differences in alcohol consumption. When consumption was controlled no other demographic variable contributed significantly to the prediction of attitude.

Attitude Toward Not Drinking. As is indicated in Table 17, the only significant group difference occurred between males and females. Females evidenced a more positive attitude than males toward drinking only soft drinks at a party where most others are drinking beer. It should be noted that all groups expressed positive attitudes toward not drinking. In contrast to the attitude towards alcohol, the effect of sex on attitude toward not drinking remains when the relationship of alcohol consumption to this attitude is controlled.

Attitude Toward Drinking One or Two Beers. Significant group differences appeared in all four ANOVAs. On the whole, males held a more positive attitude toward drinking one or two beers at a beer party than females; and members of fraternities or sororities were more positive about drinking one or two beers than non-members. Multiple comparisons using the Tukey procedure indicated that seniors evidenced more approval of drinking one or two beers than freshmen, and that students who lived off campus held a more positive attitude toward moderate drinking than residents of South Campus (see Table 17). None of these differences, however, remained when differences in alcohol consumption were controlled with multiple regression analysis.

Attitude Toward Drinking Eight or More Beers. Again, significant group differences appeared by sex, fraternal affiliation, class standing, and place of residence. As a group females held a more negative attitude toward drinking eight or more beers than males; members of Greek organizations evidenced less disapproval of heavy drinking than non-members; freshmen held a more negative

attitude toward drinking eight or more beers than seniors, and the residents of North Campus or South Campus were more negative than respondents who lived off campus (see Table 17). After controlling for group differences in alcohol consumption, multiple regression analyses suggest that only sex has an additional unique contribution to attitude toward drinking eight or more beers. Males had less negative attitudes than females.

Social and Community Influences

Respondents were asked to indicate the likelihood that their parents, important others, roommates, dates, and other UNC-CH students would expect them to drink only one or two beers at a beer party where most people were drinking beer. The perceived influence of each referent was assessed on a seven-point scale ranging from very unlikely (-3) to very likely (+3). In order to determine if selected groups differ in their perception of social influence, separate one-way analyses of variance were conducted for each of the five influence items using sex, class standing, fraternal affiliation, and place of residence as independent variables.

The means for all groups on each of the five influence items were negative, indicating that none of the groups considered it likely that significant others expected them to drink one or two beers but no more. However, some group differences appeared. For example, females indicated that it was more unlikely that their parents or important others would expect them to drink only one or two beers than did males. Students who were not members of Greek organizations reported that it was more unlikely that their parents or important others expected them to drink only one or two beers than did members (see Table 18).

Table 18

Perceived Likelihood that Significant Others Expect Respondents to Drink Beer Moderately[a] by Selected Characteristics

		Significant Others														
		Roommate			Date			Parents			Important Others			Other UNC-CH Students		
Characteristics	n	M	SD	F	M	SD	F	M	SD	F	M	SD	F	M	SD	F
Sex				.72			2.43			4.80*			4.12*			.27
Female	253	-1.55	1.74		-.86	1.95		-1.22	2.24		-1.53	1.83		-1.11	1.86	
Male	198	-1.68	1.55		-1.13	1.70		-.75	2.26		-1.19	1.77		-1.20	1.69	
Class				.70			.67			2.17			1.31			3.71*
Freshmen	115	-1.42	1.90		-.84	1.91		-1.36	2.22		-1.43	1.91		-1.03	1.95	
Sophomore	101	-1.70	1.58		-.97	1.85		-.75	2.41		-1.20	1.90		-.75	1.84	
Junior	116	-1.68	1.59		-.91	1.81		-.73	2.34		-1.24	1.80		-1.24	1.72	
Senior/5th Year	119	-1.64	1.54		-1.17	1.83		-1.18	1.04		-1.62	1.63		-1.52	1.56	
Fraternal Affiliation				.29			1.59			11.42**			4.54*			.42
Member	100	-1.68	1.45		-1.17	1.71		-.34	2.27		-1.06	1.67		-1.25	1.64	
Non-member	351	-1.59	1.72		-.92	1.89		-1.21	2.22		-1.47	1.84		-1.12	1.82	
Place of Residence				.66			1.12			.33			.55			2.45
North Campus	99	-1.48	1.86		-1.14	1.92		-1.20	2.38		-1.37	1.77		-.84	1.85	
Granville Towers	62	-1.45	1.70		-.97	1.87		-.97	2.28		-1.42	1.78		-1.26	1.85	
South Campus	103	-1.61	1.75		-.70	1.96		-1.03	2.29		-1.25	2.00		-.98	1.91	
Off Campus	187	-1.72	1.47		-1.04	1.74		-.93	2.18		-1.34	1.74		-1.38	1.63	

Note. Scale: -3 = Very unlikely; +3 = Very likely

[a] Moderate beer consumption is defined as drinking one or two beers but no more.

* $p < .05$
** $p < .001$

Respondents were also asked to assess the extent to which the environment at UNC-CH encourages and supports drinking by indicating their degree of agreement with the following statements: 1) the campus setting at UNC-CH encourages drinking; 2) there is a strong pressure to drink socially at UNC-CH; and 3) most of my friends drink at least once a week. The same analyses as described above were conducted for each of the three items. Only four group differences appeared. On the whole, females agreed more strongly than males that the campus setting at UNC-CH encourages drinking; and sophomores and seniors evidenced stronger agreement that the setting supports drinking than did freshmen. Fraternity or sorority members agreed more strongly than non-members; and off-campus residents agreed more strongly than the residents of South Campus that most of their friends drink at least once a week (see Table 19).

Multiple regression analyses of items that assess perceived social pressure indicate that neither demographic variables nor total ethanol consumption account for much of the variation in response to these measures. On the two measures of perceived social pressure (i.e., "the campus setting encourages drinking" and "there is strong pressure to drink socially"), less than 5% of the response variation is explained. For both items, the only significant predictor is academic class. Upperclass students (juniors and seniors) perceive more pressure than lowerclass students (freshmen and sophomores).

Alcohol Knowledge

The accuracy of students' alcohol knowledge was assessed by five questions. While 83% of the respondents knew that alcohol is a depressant, less than half knew that to sober up more quickly one can do nothing but wait. Fifty percent correctly responded that drinking milk before drinking an alcoholic beverage will slow the absorption of alcohol, and 26% knew that a glass of wine contains approximately the same amount of alcohol as one beer. Slightly more than half of the respondents correctly indicated that in order to be arrested for driving while intoxicated, the concentration of alcohol in the blood has to be .10 parts alcohol per 100 parts body fluid (100mg %) (see Table 20).

Table 19

Respondents' Perceptions of Social Influences to Drink at UNC-CH by Selected Characteristics

		Extent to Which Respondents Agree That:								
		The campus setting at UNC-CH encourages drinking			There is a strong pressure to drink socially at UNC-CH			Most of their friends drink at least once a week		
Characteristics	n	M	SD	F	M	SD	F	M	SD	F
Sex				4.37*			1.17			3.69
Female	253	6.00	1.32		5.51	1.57		5.36	2.00	
Male	198	5.71	1.57		5.34	1.66		5.69	1.63	
Class				3.51*			2.08			.97
Freshman	115	5.50	1.52		5.14	1.73		5.31	1.82	
Sophomore	101	6.04	1.30		5.42	1.75		5.45	1.96	
Junior	115	5.92	1.47		5.56	1.45		5.54	1.90	
Senior/5th Year	119	6.03	1.39		5.62	1.49		5.71	1.73	
Fraternal Affiliation				2.40			1.32			13.33**
Member	100	6.05	1.27		5.59	1.48		6.07	1.53	
Non-member	351	5.82	1.48		5.39	1.65		5.35	1.90	
Place of residence				1.08			1.53			3.59*
North Campus	99	6.00	1.32		5.58	1.50		5.55	1.74	
Granville Towers	62	5.60	1.63		5.55	1.69		5.56	1.82	
South Campus	103	5.83	1.50		5.15	1.63		5.01	2.02	
Off Campus	186	5.91	1.40		5.49	1.62		5.74	1.78	

Note. Scale: 1 = disagree strongly; 7 = agree strongly

* $p < .05$
** $p < .001$

Table 20

Responses to Alcohol Information Questions

	Percentage Selecting Response (n=454)
Alcohol is:	
a stimulant	13.4
a depressant[a]	83.0
an hallucinogen	.7
don't know	2.9
Drinking milk before drinking an alcoholic beverage will:	
have no effect on the absorption of alcohol	13.7
speed up the absorption of alcohol	2.6
slow the absorption of alcohol[a]	50.9
don't know	32.8
In most states to be arrested for driving while intoxicated, the concentration of alcohol in the blood has to be :	
.05 parts alcohol per 100 parts body fluid (.05%)	21.4
.10 parts alcohol per 100 parts body fluid (.10%)[a]	53.5
.25 parts alcohol per 100 parts body fluid (.25%)	1.5
don't know	23.6
A glass of wine contains the same amount of alcohol as:	
one-half a beer	11.9
one beer[a]	25.8
two beers	32.4
don't know	30.0
To sober up more quickly, you can:	
drink coffee	32.4
take a cold shower	13.2
do nothing but wait[a]	46.7
don't know	7.7

[a]Correct response

In order to assess group differences in alcohol knowledge, four one-way analyses of variance were conducted using total knowledge score (the number of correct responses) as the dependent variable and sex, class standing, fraternal affiliation, and place of residence as independent variables. Males scored significantly higher than females. Drinkers knew more about alcohol than abstainers. While the analyses indicated that class standing and place of residence have significant effects on alcohol knowledge, no differences among the groups were revealed by the Tukey procedure of multiple comparisons (see Table 21).

Only sex and total ethanol consumption contribute to prediction of total knowledge score. Males have more correct information than females. And, as expected, the more students drink the more they tend to know about alcohol.

Alcohol Education

Two-thirds of the respondents stated that they would be interested in learning more about alcohol and its effects. There were no group differences in the proportion of interested students (see Table 22). Students were also asked to indicate the probability that they would attend the following alcohol education activities: 1) formal course; 2) lectures and movies; 3) organized discussions; and 4) informal discussions. Separate one-way analyses of variance were conducted to determine if selected groups differ in their degree of interest.

Generally, members of fraternities or sororities expressed more interest in enrolling in a formal course than non-members; and females expressed more interest in attending lectures or movies than males. Multiple comparisons using the Tukey procedure suggested that freshmen were more likely than seniors to attend organized discussions or informal discussions. Off-campus students expressed less interest in participating in organized discussions than the residents of Granville Towers or North Campus (see Table 23).

Table 21

Accuracy of Alcohol Information by Selected Characteristics

Characteristics	n	Total Knowledge Score M	SD	F	p
Sex				39.82	.001
Female	257	2.31	1.09		
Male	197	2.97	1.13		
Class				2.71	.045
Freshman	112	2.34	1.13		
Sophomore	101	2.62	1.07		
Junior	118	2.73	1.08		
Senior/5th Year	123	2.69	1.27		
Fraternal Affiliation				.01	.903
Member	103	2.61	1.21		
Non-member	351	2.60	1.14		
Place of Residence				2.81	.039
Granville Towers	63	2.73	1.06		
North Campus	97	2.39	1.05		
South Campus	103	2.46	1.22		
Off Campus	191	2.74	1.18		
Type of Drinker				12.04	.001
Abstainer	66	2.18	1.05		
Drinker	387	2.67	1.15		

Note: The total knowledge score equals the number of correct responses and ranges from 0 to 5.

Table 22

Percentage of Respondents Indicating They Would Like to Learn More About Alcohol and its Effects by Selected Characteristics

Characteristics	n	%	χ^2	p<
Sex			.59	.443
Female	256	68.4		
Male	200	64.5		
Class			1.02	.780
Freshman	115	65.2		
Sophomore	102	70.6		
Junior	117	66.7		
Senior/5th Year	122	64.8		
Fraternal Affiliation			2.64	.104
Member	103	73.8		
Non-member	353	64.6		
Place of Residence			.18	.981
Granville Towers	61	65.6		
North Campus	101	68.3		
South Campus	103	66.0		
Off Campus	191	66.5		

Table 23

Respondents' Degree of Interest in Specific Alcohol Education Activities by Selected Characteristics

Characteristics	n	Alcohol Education Activity											
		Formal Course			Lectures/ Movies			Organized Discussions			Informal Discussions		
		M	SD	F	M	SD	F	M	SD	F	M	SD	F
Sex				.56			5.86*			2.89			6.35*
Female	256	2.82	1.92		3.42	1.97		3.29	1.97		5.02	1.97	
Male	200	2.69	1.86		2.98	1.88		2.98	1.84		4.54	2.03	
Class				1.09			.46			2.79*			2.87*
Freshman	115	2.63	1.77		3.26	1.92		3.43	2.02		5.16	1.98	
Sophomore	102	2.94	1.90		3.36	1.92		3.28	1.93		4.99	1.85	
Junior	117	2.92	1.94		3.24	1.92		3.19	1.87		4.66	2.12	
Senior	122	2.60	1.94		3.07	2.02		2.75	1.82		4.47	1.98	
Fraternal Affiliation				4.04*			3.84			.18			.26
Member	103	3.12	2.06		3.55	1.93		3.22	1.81		4.72	2.03	
Non-member	353	2.66	1.83		3.13	1.93		3.14	1.95		4.83	2.00	
Place of Residence				.51			.89			4.62**			.98
Granville Towers	61	2.97	1.90		3.54	1.98		3.57	2.09		4.93	1.97	
North Campus	101	2.81	1.87		3.28	1.91		3.51	1.94		5.04	2.10	
South Campus	103	2.60	1.72		3.04	1.83		3.23	1.85		4.82	1.96	
Off Campus	191	2.76	1.99		3.20	2.00		2.79	1.80		4.64	2.02	

Note.

Scale: 1 = very unlikely to attend/participate in; 7 = very likely to attend/participate in

*$p < .05$

**$p < .01$

Testing Assumptions

An alcohol education program generally tries to effect changes in drinking behavior and problem occurrence by changing attitudes or introducing information about alcohol. The success of this approach depends on the nature of the relationships between these variables. A more comprehensive understanding of the relationships may assist the development of effective programs. The analyses in this section, therefore, examine the assumptions the alcohol education program has made about the variable relationships.

Alcohol Use and Alcohol-related Problems

Dustin et. al.'s (1979) analysis of the antecedents of alcohol-related problems suggests that use of alcohol is the most direct predecessor. Heavy consumption and irresponsible use of alcohol are particularly likely to eventuate in problems.

Multiple regression analyses of the influences on the types and occurrence of alcohol-related problems indicated clearly that alcohol use is strongly related to both measures of problem occurrence, $r=.64$, $p<.001$. See Tables 24 and 25 for these analyses. As expected, problems increase as the consumption of alcohol increases.

These analyses also support the speculation that less responsible drinkers will encounter more problems than more responsible drinkers. The second strongest predictor on both problem measures is the responsibility of use score. Drinkers with more responsible alcohol use habits have fewer problems with alcohol. Moreover, this difference is independent of differences in how much the individuals may drink.

In addition to heavy consumption and responsible use, attitude toward drinking eight or more beers and Greek affiliation make consistent independent contributions to the prediction of alcohol-related problems. Drinkers with more positive attitudes toward drinking heavily have more problems more often. Similarly, members of fraternities and sororities have more problems more often than nonmembers.

The important facet of these analyses is the demonstration that program assumptions about the relationship of alcohol use to alcohol problems are appropriate.

Table 24

Multiple Regression Analysis on Problem Frequency by Total Alcohol Use, Attitudes, Responsibility and Demographic Measures

Predictor variables	Regression Coefficient	Standardized Regression Coefficient	F(1,423)	Multiple Correlation	Simple Correlation
Total absolute ethanol	0.12	0.478	115.29**	0.645	0.645
Responsibility of use	-0.13	-0.179	19.69**	0.679	-0.452
Greek status	2.38	0.144	15.91**	0.690	0.318
8+ beer attitude	0.26	0.147	10.98**	0.699	0.485
Attitude toward alcohol	-0.34	-0.207	19.70**	0.708	0.299
Being asked to drink more	0.43	0.094	5.82*	0.714	0.299
Being slightly drunk is	0.47	0.104	4.73*	0.718	0.419

* $p < .05$

** $p < .01$

Table 25

Multiple Regression Analysis on Types of Problems by Total Alcohol Consumption, Attitude, Normative Influence, Responsibility and Demographic Measures

Predictor variables	Regression Coefficient	Standardized Regression Coefficient	F(1,423)	Multiple Correlation	Simple Correlation
Total absolute ethanol	0.03	0.382	73.21**	0.638	0.638
Responsibility of use	-0.24	-0.160	16.40**	0.677	-0.46
8+ beers	0.09	0.158	12.61**	0.695	0.519
Greek status	0.72	0.136	14.96**	0.709	0.337
Friends drank at least weekly	0.13	0.110	9.32**	0.718	0.357
Remaining in control is	-0.39	-0.120	10.91**	0.725	-0.274
Parents expect 1-2 beers	0.09	0.091	6.80**	0.731	0.291
1-2 beers be slightly drunk	0.08	0.064	3.20	0.734	-0.141
Having a good time is	0.16	0.049	1.87	0.737	0.141
Attitude toward alcohol	-0.06	-0.119	7.00**	0.739	0.367
Being slightly drunk is	0.17	0.116	6.19*	0.744	0.473

* $p < .05$

** $p < .01$

Factors that Predispose and Reinforce Alcohol Use

Dustin et. al. (1979) suggest that three sets of factors influence the use of alcohol: 1) predisposing factors--attitudes and beliefs about drinking, and knowledge about alcohol; 2) enabling factors--institutional services and interpersonal skills that facilitate or impair inappropriate alcohol use; and, 3) reinforcing factors--the social influences and institutional policies that encourage or discourage alcohol use. The Student Alcohol Survey obtains data relevant to the predisposing and reinforcing factors. These data will be examined to confirm or disconfirm the assumed relationships between these factors and alcohol use. Basically, three relationships are tested. First, attitudes and beliefs are expected to influence alcohol use. Second, reinforcing factors, especially perceived social influences, are expected to influence alcohol use. Finally, the settings in which alcohol is used are examined as enabling influences on alcohol use.

Attitudes. The attitude measures included in the Student Alcohol Survey assessed specific alcohol-related attitudes--attitude toward not drinking at a party, attitude toward drinking only 1 or 2 beers at a party, and attitude toward drinking eight or more beers at a party. A less specific attitude toward alcohol was also measured. It is expected that the specific measures of drinking behavior will relate more strongly to actual beer drinking than the more general measure of attitude toward alcohol (cf. Fishbein and Ajzen, 1975).

Stepwise multiple regression analyses with attitudinal measures as the predictor variables and specific types of alcohol use as the criterion variable suggest consistent strong relationships between measures of attitude and alcohol use. Table 26 presents these analyses. Specific attitudes toward beer drinking are more strongly associated with measures of beer consumption (i.e., attitude toward drinking eight or more beers and total beer consumption) than to measures of wine and liquor use. Similarly, for total wine and total liquor consumption, the nonspecific attitude toward alcohol rather than specific attitudes toward beer is the first variable to enter the prediction equations. If the survey had included measures of attitude toward drinking wine and attitude toward drinking liquor, it is likely that these attitudes would

Table 26

Multiple Regression Analys s on Measures of Alcohol Use
by Attitudinal Measures

Predictor variables	Regression Coefficient	Standardized Regression Coefficient	F(1,455)	Multiple Correlation	Simple Correlation
Criterion is Average Beer Consumption Per Use					
1-2 Beers	0.21	0.330	38.13**	0.538	0.538
8+ Beers	0.19	0.295	43.21**	0.610	0.516
No Beers	-0.06	-0.091	4.98*	0.617	-0.318
Alcohol	-0.03	0.049	0.84	0.618	0.458
Criterion is Total Beers Last Month					
8+ Beers	3.12	0.332	50.36**	0.508	0.508
1-2 Beers	2.17	0.230	17.00**	0.562	0.459
No Beers	-1.07	-0.107	6.39*	0.571	-0.317
Alcohol	0.42	0.046	0.68	0.572	0.408
Criterion is Total Wines Last Month					
Alcohol	0.64	0.269	17.26**	0.307	0.307
8+ Beers	0.34	0.136	6.38*	0.330	0.255
No Beers	-0.14	-0.054	1.23	0.333	-0.178
1-2 Beers	-0.17	-0.067	1.09	0.336	0.205

* $p < .05$

** $p < .01$

Table 26
(continued)

Predictor variables	Regression Coefficient	Standardized Regression Coefficient	F(1,455)	Multiple Correlation	Simple Correlation
Criterion is Total Liquors Last Month					
Alcohol	0.67	0.184	8.85**	0.382	0.382
8+ Beers	0.62	0.164	10.17**	0.421	0.342
1-2 Beers	0.56	0.146	5.69*	0.433	0.369
No Beers	-0.17	-0.042	0.83	0.435	-0.212
Criterion is Total Absolute Ethanol					
8+ Beers	2.12	0.313	47.75**	0.524	0.524
1-2 Beers	1.32	0.194	12.90**	0.588	0.490
Alcohol	1.04	0.159	8.50**	0.601	0.484
No Beers	-0.71	-0.100	5.86*	0.608	-0.330

* $p < .05$

** $p < .01$

be the best predictors of wine and liquor consumption. Nonetheless, despite the nonspecificity in the attitude measures, 36% of the variation in total ethanol consumption is related to the attitude measures employed. The attitudes toward consumption of beer predict well because 43% of the total ethanol is due to beer.

The multiple regression analyses suggest strongly that heavy drinkers have more positive attitudes toward heavy drinking and less positive attitudes toward not drinking than light drinkers and nondrinkers. These relationships are most easily illustrated by comparing the attitudes of nondrinkers, light, moderate, and heavy drinkers. These data are presented in Table 27.

Although all groups tend to view nondrinking positively, the nondrinkers are substantially more positive than drinkers. Likewise, the negative attitudes of heavy drinkers toward heavy drinking are all less negative than those of nondrinkers. Moreoever, on measures of attitude, each group differs significantly from all other groups.

Beliefs

The theory of attitude formation employed in the construction of the Student Alcohol Survey hypothesizes that attitude (A) is determined by a summation of the perceived attributes (a) of the attitude object and the evaluation (e) of each attribute. Equation 1 illustrates the relationship

$$A = \Sigma a_i e_i \quad , \qquad (1)$$

when attitude toward a specific behavior is considered, the attitude is determined by the perceived consequences of the behavior and the evaluation of those consequences. These are beliefs about the behavior. An examination of these beliefs may provide information about the structure of the attitudes and suggest strategies to promote positive change in attitude.

For the diagnostic analysis of attitude toward drinking one or more beers, one way analyses of variance were computed on six potential consequences of drinking one or two beers and the evaluation of each consequence. Drinker classification was used as the independent variable. Differences in perceived consequences and evaluation of consequences, therefore, reflect differences among nondrinkers, light, moderate and heavy drinkers. Table 28 presents these analyses.

Table 27

Means and standard deviations on measure of attitude by drinker classification

Attitude Toward [a]	Drinker Classification				
	Nondrinkers (64) [b]	Light (97)	Moderate (170)	Heavy (122)	F
Alcohol	-5.86	-1.15	1.05	2.57	111.90***
(sd)	(3.29)	(3.81)	(2.78)	(2.95)	
1-2 Beers	-3.98	0.32	2.36	4.38	118.83***
(sd)	(4.02)	(2.94)	(2.43)	(3.12)	
Not Drinking	5.81	3.89	2.24	0.98	32.26***
(sd)	(3.77)	(3.69)	(3.12)	(3.53)	
8+ Beers	-7.77	-6.21	-4.99	-1.27	67.84***
(sd)	(2.34)	(3.49)	(3.45)	(3.49)	

*** $p < .001$

[a] each attitude measure consists of three evaluative dimensions (good-bad, pleasant-unpleasant, harmful-beneficial). Dimensions are -point scales scored -3 to +3. The three dimensions are summed to compute a total score--range = -9 to +9.

[b] members in parentheses indicate sample sizes.

Table 28

Means and F Ratios for Specified Consequences, and Evaluations of Consequences by Drinker Classification

	Nondrinkers	Light	Moderate	Heavy	F
n	64	95	172	120	
Perceived consequences of drinking 1 or 2 beers but no more[1]					
Feel part of group	-0.30[a]	0.21[ab]	0.99[c]	0.75[bc]	12.17***
Remain in control	0.63[a]	1.67[b]	2.30[c]	2.60[c]	35.43***
Have a good time	-0.31[a]	1.09[b]	1.81[c]	1.81[c]	41.50***
Asked to drink more	1.44	0.75	0.92	1.18	2.43
Be slightly drunk	-0.13[a]	-0.55[ab]	-0.93[b]	-1.72[c]	13.37***
Be self-conscious	-0.28[a]	-1.09[b]	-1.59[bc]	-1.90[c]	28.06***
Evaluation of consequences[2]					
Being part of group	0.39[a]	0.77[a]	1.44[b]	1.58[b]	16.18***
Being in control	2.77[a]	2.72[a]	2.70[a]	2.42[b]	6.14***
Having a good time	2.39[a]	2.38[a]	2.58[ab]	2.74[b]	6.48***
Being asked to drink more	-2.05[a]	-1.44[b]	-0.83[c]	-0.48[c]	20.82***
Being slightly drunk	-1.94[a]	-0.79[b]	0.19[c]	0.88[d]	84.42***
Being self-conscious	-0.83[a]	-1.40[ab]	-1.67[b]	-1.79[b]	7.13***

*** $p < .001$

Note. means with different superscripts differ significantly ($p < .05$) on a Scheffe post-hoc comparison.

[1] subjective probabilities for each consequence assessed on a 7 point unlikely - likely dimension, scored -3 to +3

[2] evaluation of consequences assessed on a 7 point bad - good dimension, scored -3 to +3.

The analysis of perceived consequences suggests that the perceptions of drinkers who drink heavily and nondrinkers differ on nearly all of the items. After one or two beers, nondrinkers, when compared to heavy drinkers, believe they will be less likely to be part of the group, remain in control, and have a good time. In addition, the nondrinkers report a greater likelihood of being slightly drunk and feeling self-conscious. The analysis of the evaluation of each consequence further emphasizes the differences between nondrinkers and heavy drinkers. For nondrinkers, being part of the group, and having a good time are less positive than these states are for heavy drinkers. Further, the nondrinkers are more negative toward being slightly drunk and being asked to drink more. Finally, they tend to place more emphasis on remaining in control. It is clear that nondrinkers see few positive benefits from drinking one or two beers.

In contrast, moderate and heavy drinkers are more positive about the desirable consequences of drinking one or two beers--feeling part of the group, remaining in control, and having a good time. In general, light drinkers fall between nondrinkers and heavy drinkers on the perception of desirable consequences and are more similar to nondrinkers than heavy drinkers on the evaluation of those consequences. This suggests light drinkers are less motivated to drink than heavy drinkers.

Overall, the group differences on the measures of perceived consequences and their evaluations are consistent with the differences in alcohol consumption. That is, heavy and moderate drinkers are more positive toward drinking one or two beers than nondrinkers and light drinkers. The data also reflect the heavy drinker's tendency to drink more than one or two beers. Students who drink heavily place significantly less importance on remaining in control, and are less negative (than light drinkers) toward being offered more to drink. In addition, heavy drinkers are significantly more positive toward slight drunkenness and feel that slight drunkenness is unlikely after only one or two beers. Thus, it is not surprising that they usually do not stop with just one or two beers at a party.

These observations on heavy drinkers are supported with a multiple regression analysis of total ethanol consumption using the beliefs and their evaluations as the criteria. The major predictor variables are the evaluation of slight drunkenness and the perceived likelihood that one or two beers would cause slight drunkenness. Combined, these two variables can explain a quarter of the variation in alcohol consumption

Social Influences. The contribution of social influences to alcohol consumption was investigated with multiple regression analyses. Analysis of the items assessing the influence of normative referents on alcohol consumption indicate little influence. Less than 9% of the variation in consumption is related to these measures. Only parental and roommate expectations contribute to the

prediction of total alcohol use. The more parents expect students to drink, the more likely they are to drink. Curiously, the opposite effect is found for roommate expectations. Dates, important others, and other students have no unique influence. See Table 29 for this analysis.

These data do not support the Dustin et. al. (1979) speculation strongly. However, there are several possibilities. First, social influence may vary. In some situations social influence may contribute directly. For example, decisions to drink and not drive may be affected by social influences. Thus, like attitudes specific measures of normative influence are preferred and the situation assessed in the Student Alcohol Survey--drinking at a party--may be controlled more by attitudes than social influence. A second explanation for a lack of relationship is that the measures employed simply are not adequate to assess the effect of social influence. Because of this possibility development of social influence measures will continue.

Contexts For Drinking

Students drink in a variety of situations. Some of these environments are expected to be associated with greater use of alcohol. Although not referred to in the Dustin et. al. (1979) adaptation of Green's model for health education, drinking contexts may function as an enabling factor. The availability of alcohol in some situations and not in others can clearly enable or foster alcohol use.

Multiple regression analyses were used to examine the relationship between drinking contexts and total alcohol consumption. Five of the nine contexts contributed significantly to the explanation of variations in alcohol use. The strongest predictor of total consumption is the frequency of drinking in a bar, $r = 0.60$, $p<.001$. Students who frequently drink in bars tend to drink more. Bars are designed as drinking environments so this relationship is expected. See Table 30.

Cars, however, were not planned as places to drink. Thus the strong relationship between consumption and drinking while driving is unexpected and potentially dangerous, $r=.49$, $p<.001$. Although students as a group tend to drink in cars infrequently (less than two days a month), drinking while driving is the second strongest predictor of total ethanol consumption. Apparently, students who drink heavily drink in cars. In addition, the correlation between drinking alone and drinking in a car is very strong, $r=0.785$, $p<.001$. It appears that, when drinking in cars, students tend to drink alone. Moreover, once this influence of drinking alone in a car is controlled, drinking alone actually has a negative relationship with total ethanol consumption. The unstandardized regression coefficient indicates that those who drink alone when not in a car tend to drink less. See Table 30.

Table 29

Multiple Regression Analysis of Total Ethanol Consumption by the Perceived Expectations of Normative Referents to Drink Moderately

Predictor variables	Regression Coefficient	Standardized Regression Coefficient	F(1,454)	Multiple Correlation	Simple Correlation
Expectations of					
Parents	2.96	.25	19.87**	.24	.24
Roommate	-2.48	-.15	6.71*	.29	-.10
Date	-1.06	-.07	1.61	.29	-.04
Important others	1.33	.08	1.82	.30	.10
Other students	-0.28	-.02	0.14	.30	-.07

*$p<.05$

**$p<.01$

Table 30

Multiple Regression Analysis of Total Alcohol Consumption by Drinking Contexts

Context	Regression Coefficient	Standardized Regression Coefficient	F(1,382)	Multiple Correlation R	Correlation Coefficient r
Criterion is Total Absolute Ethanol					
Bar	2.37	0.398	74.48**	0.603	0.603
Car	3.03	0.338	27.13**	0.648	0.491
Frat. House	0.88	0.153	12.93**	0.661	0.405
Parent's Home	0.81	0.116	8.09**	0.669	0.326
Alone	-1.51	-0.149	5.80*	0.675	0.340

* $p < .05$

** $p < .01$

The relationship between total consumption, drinking in cars and drinking alone may indicate that heavy drinkers drink in cars to hide their consumption, as a prelude to nondrinking events, or, because they are more tolerant to alcohol, find their driving ability less impaired and are more willing to combine drinking and driving. Future analyses may be able to clarify the relationship between consumption and drinking in cars, and determine how problematic it is.

A second multiple regression analysis controlled for total alcohol use and sought to identify contexts especially conducive to alcohol-related problems. Analyses were conducted on both the number of different problems and the total problem frequency. These analyses are presented in Tables 31 and 32. In both cases, total ethanol consumption was the dominant influence. With this influence removed, drinking while driving was the second major influence. However, there is a confound with this measure because drinking and driving also appears on the problem lists. With both total ethanol and drinking while driving controlled, several contexts still make independent contributions to problem occurrence. Drinking in bars and fraternity houses increases total problem frequency and number of different problems. In addition, drinking alone and in residence halls increase the number of problems students experience. Only drinking with meals contribute significantly to a reduction in the number of different problems that student drinkers encounter. Overall, there is clear evidence that drinking in cars, in bars, and in fraternity houses is associated with increased consumption of alcohol and increased alcohol-related problems.

Summary of Results

Need Identification

Alcohol Use

1. Less than 12% of fraternity and sorority members are nondrinkers or light drinkers.
2. Greeks have a larger proportion of heavy drinkers (48%) than other demographic groups.
3. Students with a Greek affiliation tend to drink large amounts more frequently than students who are not members of fraternities or sororities.
4. Forty-two percent of UNC women are nondrinkers or light drinkers. This compares to 27% of the males.
5. Males drink more beer and liquor than females and drink beer more often.
6. Consistent differences in alcohol use among classes and residence groupings were not found.

Table 31

Stepwise Multiple Regression Analysis of Problem Types by Total Alcohol Use and Drinking Contexts

Variable	Regression Coefficient	Standardized Regression Coefficient	F(1,448)	Multiple Correlation	Simple Correlation
Total ethanol	.028	.347	46.73 **	.654	.654
Car	.417	.266	35.97 **	.699	.592
Bar	.289	.221	19.39 **	.721	.589
Meals	-.157	-.104	3.84 *	.725	.338
Fraternity house	.140	.104	6.81 *	.730	.468
Off campus apt.	.111	.078	3.21	.732	.399
Alone	-.055	-.028	0.51	.733	.333
Parent's home	-.035	-.022	0.30	.733	.317
Residence hall	-.017	-.011	0.09	.733	.241
Restaurant	-.010	-.006	0.01	.733	.436

* $p<.05$

** $p<.01$

Table 32

Stepwise Multiple Regression Analysis of Problem Frequency by Total Alcohol Use and Drinking Contexts

Variable	Regression Coefficient	Standardized Regression Coefficient	F(1,448)	Multiple Correlation	Simple Correlation
Total ethanol	.101	.403	63.13 **	.663	.663
Car	1.314	.268	36.60 **	.710	.605
Fraternity house	.475	.112	7.99 *	.716	.456
Alone	.757	.126	10.04 **	.723	.445
Meals	-.236	-.050	0.89	.726	.358
Bar	.509	.125	6.20 *	.728	.516
Residence hall	-.429	-.089	5.36 *	.732	.170
Parent's home	-.271	-.055	1.85	.734	.294
Restaurant	-.152	-.028	0.25	.734	.412
Off campus apt.	-.024	-.005	0.02	.734	.371

* $p<.05$

** $p<.01$

Alcohol-related problems

1. The problems that occurred most frequently were hangover, drove after drinking, and drove while drinking.

2. Males and Greeks had more hangovers than females and non-Greeks.

3. Sex and Greek affiliation differences were found on the driving measures. In addition, upper class students and off campus residents experienced more drinking and driving than freshmen and sophomores living on campus.

4. Indices of problem frequency and problem type suggest that males, Greeks, seniors, and off campus residents experience more problems than their comparison groups.

5. Most of the group differences in problem occurrence can be explained by differences in how much the groups drink.

6. Greek members are more susceptible to problems than non-Greeks even when differences in alcohol consumption are controlled.

7. Men still tend to have more problems than women when differences in consumption are controlled.

8. Differences among classes and place of residence on problem measures tend to be explained by group difference in total alcohol use.

Social Contexts

1. Students who drink heavily drink in more places.

2. Greeks aremore likely to drink in bars, while driving, and in fraternity houses.

3. Males drink in bars, while driving, and alone more often than females.

Responsible Use

1. Females tend to be more responsible drinkers than males.

2. Heavier drinkers tend to drink less responsibly.

Attitudes

1. Group differences in attitude toward alcohol and attitude toward drinking 1 or 2 beers could be explained by differences in total consumption.

2. Differences in attitude toward not drinking and attitude toward drinking 8 or more beers were primarily explained by differences in total consumption. However, sex has an additional contribution to these attitudes. Even when total consumption is controlled, females are more positive toward not drinking and more negative toward drinking eight or more beers.

3. When total consumption is controlled, Greek affiliation does not contribute independently to any of the attitude measures.

Social Influences

1. Measures of social influence to drink 1 or 2 beers at a party did not relate strongly to demographic characteristics or alcohol use.
2. Measures of social pressure to drink also did not relate strongly to alcohol use or demographic characteristics.

Alcohol Knowledge

1. Most students (83%) correctly classified alcohol as a depressant.
2. Slightly more than half of the sample knew that milk will slow the absorption of alcohol (51%), and that a driver can be arrested for driving while intoxicated with a blood alcohol concentration of greater than 100mg % (53%).
3. Less than half the sample (46%) knew that cold showers and hot coffee are ineffective methods of sobering up.
4. Only 26% of the respondents correctly reported that one 4oz glass of wine had as much alcohol as one 12oz beer.
5. Males answered more questions correctly than females, and drinkers knew more than nondrinkers.

Alcohol Education

1. Two-thirds of the students reported they would like to know more about alcohol and its effects.
2. Interest in a formal course, lectures and organized discussions was generally low. Students expressed greatest interest in informal discussions.

Assumption Testing

Use and Problems

1. Students who drink heavily have more alcohol-related problems than students who drink lightly.
2. "Responsible" drinkers tend to have fewer problems than less responsible drinkers even when differences in alcohol use are controlled.

Attitudes and Use

1. Individuals who drink heavily tend to have positive attitudes toward alcohol and drinking 1 or 2 beers. Their attitude toward drinking 8 or more beers is least negative.
2. Individuals who do not drink have more positive attitudes toward not drinking than drinkers.
3. Specific measures of attitude relate more strongly to measures of alcohol use than nonspecific attitude measures.

Beliefs and Use

1. Drinkers and nondrinkers tend to differ in their perceptions of the consequences of drinking one or two beers.
2. Heavy drinkers when compared to light drinkers and nondrinkers have more positive attitudes toward being drunk, being part of a group, and having a good time. Their evaluation of being in control is less positive and they are less negative about being asked to drink more.

Social Influences

1. The measures of social influence do not relate strongly to measures of total alcohol use.

Context

1. Students who drink heavily tend to drink in more places.

2. The contexts that consistently contributed to increases in alcohol-related problems are drinking while driving, drinking alone, drinking in a fraternity house, and drinking in a bar.

3. Individuals who drink with meals tend to have fewer types of alcohol-related problems.

Recommendations and Discussion

The Student Alcohol Survey identifies current patterns of alcohol consumption, measures common attitudes and beliefs about alcohol use, and permits examination of relationships between variables that affect alcohol use. These data are obtained to identify areas where the need for alcohol education services is the greatest and to suggest strategies for the most effective implementation of these services. Thus, survey data can be examined for indications of service need and for suggestions on implementation of services.

Indications of Service Needs

Fraternity and Sorority members. The analyses of demographic characteristics indicated consistent differences between members of fraternities and sororities and nonmembers. Individuals with a Greek affiliation tended to drink more than other students, and they drink more frequently. Only 12% of Greeks were nondrinkers or light drinkers, 48% were heavy drinkers. As a group, they had more alcohol-related problems even when differences in total

alcohol consumption were controlled. However, Greek and non-Greek differences on measures of attitude, belief, knowledge, and social influence could be explained simply by differences in total consumption.

Based on these data it seems clear that a special effort should be made to provide fraternity and sorority members with alcohol education services. Specific recommendations are more speculative and are offered simply to illustrate possible service strategies.

Specific workshops might address, for example, serving nonalcoholic beverages at parties, the unique facets of Greek life that contribute to alcohol-related problems, social pressure to drink on nondrinkers and light drinkers, and how to maintain health and continue current drinking patterns.

Males and females. UNC men and women differ considerably in alcohol consumption patterns. While only 27% of the men are nondrinkers or light drinkers, 42% of the women fall into this category. More alcohol-related problems are found among men even after differences in consumption are controlled. Men are especially likely to drink and drive. Also after controlling for consumption differences the attitudes of women are still more positive toward nondrinking and more negative toward heavy drinking. Thus, special service efforts should be made among UNC men. In workshops for men specific attention could be directed toward changing attitudes toward nondrinking and heavy drinking. Information on the consequence of driving while intoxicated may also be effective. Finally, the materials developed for Greek members may also be appropriate for male non-Greek audiences.

Class and place of residence. Differences on these dimensions were not consistent. However off-campus residents are more likely to

drink and drive. Thus special programs on the consequences of driving under the influence may fill a service need.

Implementation of Services

Use and Problems. Individuals who drink heavily tend to have more alcohol-related problems. The most frequent problems are hangover and drinking and driving. However, students who score high on a scale assessing responsibility of alcohol use have fewer problems with alcohol when differences in levels of alcohol use are controlled. Thus alcohol-related problems and the relationship between problems and use should be stressed in workshops. More importantly, workshops may wish to focus on methods to avoid problems (e.g., hangover). Because some of the methods to reduce problem recurrence are the behaviors that seem to define responsible drinking, special emphasis could be placed on these behaviors.

Attitudes, beliefs and use. Generally, the major attitudinal and belief differences are between heavy or moderate drinkers and light drinkers or nondrinkers. Differences between light and heavy drinkers are found on attitude toward heavy drinking and the evaluations of being drunk and being offered more to drink. In each case heavy drinkers are more positive. Thus these specific attitudes could be the focus of attitude change strategies. Note that stress is placed on negating positive attitudes toward heavy drinking rather than fostering positive attitudes toward moderate drinking.

Contexts

The two contexts that seem to be most frequently associated with alcohol use and problems are bars and driving. This suggests that efforts to develop relationships with area bartenders and to offer

training to bartenders should continue. Secondly, efforts to educate about the consequences of drinking and driving should also continue. Perhaps new strategies can be developed to generate increased social pressure not to drink and drive.

Site Specific Impact Evaluation

Each site is required to choose one element of its program for rigorous evaluation. The objective is to assess the impact (positive or negative) of that program feature on alcohol-related behavior, attitudes, social norms and knowledge. This evaluation requirement is identified as the Site Specific Impact Evaluation.

The University of North Carolina - Chapel Hill chose to concentrate its impact evaluation on the alcohol education workshops delivered by peer educators to other undergraduates. The evaluation of the workshops consists of three parts: First a description of the workshop activities and an examination of the extent of service delivery. The second facet is an analysis of participant response to the workshops. Finally, the effect of workshops on a selected population of students in residence halls is assessed.

Description and extent of workshops

Workshop description. Students enrolled in a course on the prevention of alcohol abuse were required to develop and present alcohol education workshops. Generally, pairs of students constructed one workshop and conducted that workshop at least three times. Explicit information on the criteria used to construct workshops and on the content of each workshop may be found in Mills, Davis, Whiteside and McCarty (1979). In all, 11 different workshops were developed. The titles and a brief description of each are listed in Table 1 . An additional presentation provided an overview of the others. However, because specific alcohol education objectives were not defined for the overview presentation, it was not included in the evaluation.

TABLE 1

SPRING 1979 WORKSHOPS

TITLE	DESCRIPTION	
	EMPHASIS	PROCESS
Alcohol and Advertising	Common themes in liquor advertising and how they influence alcohol use	Slide presentation and discussion
Alcohol and Legal Implications	Discussion of arrest for DUI and its consequences	Slide presentation and Q & A with a local attorney
Alcohol and Sex Roles		Lectures in selected Health Education classes
Alternative Stress Relievers	How to use methods other than drinking to relax	Discussion and training in relaxation
Drinking Styles	Discussion of drinking at UNC and advice on avoiding negative consequences	Slide presentation and discussion
I Don't Drink (much) and I'm OK	Demonstrated biochemical effects of alcohol and assertiveness training	Demonstration/discussion and assertiveness training
A Pina-Colada for Your Thoughts	Nonalcoholic beverages	Demonstrations and Discussion
RA Workshop: How To Handle A Problem Drinker	Discussion of emergency care and practical advice	Inservice training for residence hall staff
Responsible Drinking and Setting Limits	Discussion on Responsible drinking: how and why	Discussion
Un-Bartender	Advice on mixing nonalcoholic drinks	Discussion and Demonstration
Women and Alcohol	Emphasis on change in the role of women and women's drinking styles	Discussion in selected women's studies classes

Extent of workshops. Workshop activity was monitored with forms known as "Workshop Records". The "Workshop Record" obtained information on where the workshop was conducted, its title, who presented, and how many individuals participated. Additional data were obtained with "Feedback Forms" completed by participants.

"Workshop Records" indicate that the 11 workshops were presented a total of 37 times between March 20, 1979 and April 18, 1979. Most of these presentations occurred in residence halls although three sororities received a total of four presentations, one presentation was conducted for a Greek service organization and two workshops were presented seven times for classes in health education and women's studies. In all, 416 students (247 women, 137 men, 32 did not indicate their sex) participated and completed "feedback" forms. The mean number of participants in the 37 workshops was about 12 students with a range of 6 to 20.

More information on who participated in which workshop can be found in Table 2 . The sex of participants and their Greek status are indicated. An inspection of this table indicates that students with a Greek affiliation were well represented among workshop participants (26.1%) even though only five presentations were conducted for Greek organizations. However, an analysis of Greek status by gender reveals that most Greeks among the participants were women (64.5%). Although sorority women tend to drink more than nonsorority women, men in fraternities are the heaviest drinking group on campus. Thus, increased efforts are needed to reach this high-risk group of students.

The table of males and females attending each workshop indicates another service gap. Four of the workshops were composed primarily of women and 64.1% of all participants were women. There are two implications of this bias. First, males, a group that is at greater risk for alcohol-

TABLE 2

SEX AND GREEK AFFILIATION OF WORKSHOP PARTICIPANTS

WORKSHOP	SEX			AFFILIATION		
	FEMALE	MALE	DNI[a]	GREEK	NON-GREEK	DNI[a]
Advertising	12	14	1	1	24	2
Legal Implications	22	23	3	22	20	6
Sex Roles	31	32	2	21	40	4
Stress	13	18	1	3	27	2
Drinking Styles	16	11	1	4	23	1
I'm OK	14	12	0	3	23	0
Pina-Colada	22	1	1	10	11	3
RA Workshop	20	15	20	9	23	23
Responsible Drinking	22	0	0	14	7	1
Un-Bartender	24	7	0	7	24	0
Women and Alcohol	51	3	3	2	50	5
TOTAL	247	137	32	96	273	47

[a] DNI=did not indicate

related problems than females, are receiving less service. Therefore, service efforts are not reaching the individuals with greatest need. Second, the difference in gender composition may confound comparisons between workshops on program quality and impact. That is, women may be more or less responsive to the workshops. Thus, the analysis must control for possible gender effects.

Counts based on the class and race of workshop participants suggest that these groups were appropriately represented among workshop participants. A final participant characteristic that has been speculated on is drinking status. Because the workshops focus on problems related to alcohol use, there is a possibility that heavier drinkers, those with the most problems, are likely to avoid the presentations. The Fall UNC alcohol survey found that 26.2% of the sample drank five or more beers at a time. When workshop participants were asked before the workshop to indicate the number of beers they would have at a party, 40% anticipated having five or more beers. Thus, this suggests that heavier drinkers do not appear to avoid the workshops. Of course, the high Greek representation may inflate the number of heavier drinkers among workshop participants. In addition, some workshops were compulsory for staff or class members.

Participant Response to Workshops

Workshops conducted by peer educators are designed to introduce information about alcohol and alcohol-related problems and to foster attitude change that supports less abusive drinking styles. To determine if these general objectives were obtained, workshop participants were surveyed before and after the workshop.

Survey Instrument -- The Feedback Form. The quality and impact of workshop presentations were monitored with "feedback" forms completed

by participants. Before and after the presentation, participants responded to items assessing perceived social influence, beliefs about the consequences of drinking 6 or more beers and intentions to drink beer. The before portion of the survey included items on demographic characteristics. After the workshop participants rated the presentation, the presenters and their own participation on a series of evaluative dimensions. To assist program planning, items were chosen to reflect dimensions of evaluation, activity and apparent preparation. Table 3 lists the adjective pairs used for workshop evaluation and the dimensions they appear to load on most strongly. Factor analysis will eventually be used to define loadings empirically. The feedback forms were distributed at the beginning of each workshop and collected at the completion. Time was set aside for responding to the survey.

Data from the feedback forms are examined in three steps. First, to obtain a general impression of participant response to workshops and to assess the effect of participant's sex on the evaluations, the means from males and females on each evaluation dimension are examined. Second, comparisons are made between workshops on these items to determine if some workshops were perceived as better. Finally, the attitudes and beliefs are examined for indications of changes following the presentations.

General evaluation of workshops. Table 4 presents means from males and females on the dimensions used to evaluate presentations, presenters, and personal participation. As a general impression, men and women responded favorably to the workshop presentations. Ratings tended to be at least "moderately" positive. The lowest scores were recorded on the personal participation dimensions. Apparently participant involvement in workships can be increased. It is interesting that contrary to popular stereotypes males rated themselves as significantly more talkative than

TABLE 3

DIMENSIONS FOR EACH RATING SCALES

EVALUATED CONCEPT / ADJECTIVE PAIRS	DIMENSIONS: EVALUATION	INTELLECTUAL EVALUATION	ACTIVITY	PREPARATION
Presentation				
useless-useful		x		
unimaginative-imaginative		x		
irrelevant-relevant	x			
unimportant-important	x			
trivial-meaningful	x			
not clear-clear				x
bad-good	x			
Presenters				
unfriendly-friendly	x			
uninvolved-involved			x	
unconcerned-concerned			x	
boring-interesting			x	
unprepared-prepared				x
not clear-clear				x
unintelligent-intelligent		x		
bad-good	x			
Participation				
bored-interested			x	
uninvolved-involved			x	
silent-talkative			x	
friendly-unfriendly	x			

TABLE 4

MEANS AND T-VALUES FOR RATINGS ON EVALUATION DIMENSIONS BY SEX OF PARTICIPANTS

Item	Females	Males	t [a]
The presentation was... [b]			
useful	2.26	1.97	2.56**
imaginative	2.21	1.90	2.59**
relevant	2.46	2.22	2.49**
important	2.42	2.15	2.82**
meaningful	2.22	1.93	2.52**
clear	2.40	2.17	2.20*
good	2.44	2.18	2.45*
The presenters were...			
friendly	2.79	2.66	2.33*
involved	2.74	2.59	2.26*
concerned	2.68	2.47	3.20**
interesting	2.44	2.18	2.40*
prepared	2.70	2.53	2.06*
clear	2.50	2.36	1.37
intelligent	2.57	2.39	2.37*
good	2.54	2.41	1.60
I was...			
interested	2.27	1.98	2.55*
involved	1.89	1.74	1.17
talkative	1.03	1.52	-2.83**
friendly	1.88	1.94	-0.49

* $p < .05$ ** $p < .01$

[a] t-tests were based on separate variance estimates. Degrees of freedom ranged from 199 to 283

[b] The positive end points from 7-point bipolar adjective dimensions are listed. Each scale was scored -3 to +3.

females. On most of the other dimensions assessing presentation and presenter quality, women consistently provided the most positive scores.

The discussion of the extent of service delivery noted that more women then men participated in workshops. Some workshops consisted primarily of women. The male-female difference in workshop evaluation, therefore, is confounded with differential distribution of the sexes. It is not possible to determine if women had better workshops or, alternatively, simply view all workshops more positively.

Workshop Comparisons -- Process Evaluation. The analysis of gender differences in response to workshops suggested that the workshops were viewed positively. However, the possibility of differences between workshops was not examined. Analyses of variance on each item and multivariate analyses of variance on sets of items suggest that differences between the workshops were perceived.

Because the concern is with sets of variables, multivariate analyses of variance are appropriate. Unfortunately, a program limitation in Manova (Applebaum note 1) restricts the independant variable (workshop topic) to only eight levels. Thus, all 11 workshops cannot be examined simultaneously. The item means for each workshop were inspected and three workshops with the more positive ratings and three with less positive ratings were selected. The workshops selected as more positive were "Unbartender", "Legal Implications", and "Women and Alcohol". The less positive workshops that were selected were "Responsible Drinking", "Alcohol Advertising", and "Sex Roles". Multivariate analyses of variance examined responses made to the dimensions that evaluated the presentation, the presenters and the self-participation of the respondents. Substantial multivariate differences were evident for each of the three sets of variables.

These analyses are reported in Table 5. Moreover, 18 of the 19 univariate tests for differences on each evaluation dimension on each evaluation differences were also significant. See Table 6 for the univariate tests. Clearly, the workshops differed on most of the dimensions.

Although the multivariate and univariate analyses are instructive,

TABLE 5

MULTIVARIATE ANALYSES OF WORKSHOPS ON PRESENTATION, PRESENTER AND SELF-PARTICIPATION EVALUATIONS

CONCEPT EVALUATED	ROOTS	F	dfhyp	dferror	p<	CANONICAL CORRELATION
Presentation	1-5	3.48	35	919	.001	.545
	2-5	1.58	24	789	.038	.312
	3-5	1.00	15	629	.459	.185
	4-5	0.90	8	439	.520	.164
	5-5	0.37	3	220	.772	.071
Presenters	1-5	2.33	40	948	.001	.436
	2-5	1.59	28	804	.028	.340
	3-5	0.93	18	633	.538	.203
	4-5	0.75	10	437	.680	.136
	5-5	0.84	4	219	.500	.123
Self-Participation	1-4	4.66	20	734	.001	.493
	2-4	2.23	12	678	.009	.258
	3-4	1.84	6	588	.089	.211
	4-4	0.42	2	445	.658	.061

TABLE 6

UNIVARIATE TESTS OF ADJECTIVE DIMENSIONS ASSOCIATED WITH MULTIVARIATE ANALYSES OF PRESENTATIONS, PRESENTER, SELF-PRESENTATION

CONCEPT DIMENSION	F(5,224)	MEAN SQ	p<	DISCRIMINANT FUNCTION COEFFICIENTS	
Presentation					
useful	15.37	13.36	.001	.516	.209
imaginative	11.66	11.72	.001	.224	-.026
relevant	8.98	6.16	.001	-.285	-.659
important	11.65	7.77	.001	.359	-.903
meaningful	9.87	9.09	.001	.099	.554
clear	7.68	6.40	.001	.022	.059
good	12.91	10.18	.001	.249	.573
Presenters					
friendly	4.25	1.33	.001	-.068	-.141
involved	6.62	2.29	.001	.256	.987
concerned	8.06	3.02	.001	.467	-.620
interesting	7.77	6.99	.001	.401	.934
prepared	5.29	2.87	.001	.046	-.976
clear	5.00	4.12	.001	-.105	.515
intelligent	7.32	3.86	.001	.382	-.460
good	6.71	4.54	.001	-.211	-.276
Self-Participation					
interested	8.84	9.16	.001	.794	.008 -.846
involved	4.03	5.66	.002	.539	-.621 1.179
talkative	3.42	10.17	.005	-.806	-.856 -.658
friendly	0.67	0.88	.648	-.145	.701 -.321

the magnitude of differences between workshops generally is less than one scale point. It is difficult to imagine, therefore, ways in which workshop presenters can discriminate the mean difference in participant response to good and better workshops. Moreover, it is even more difficult to suggest how these mean differences can be used to improve future presentations. Student presenters need a more obvious and instructive feature to focus on.

The clustering of responses on the positive endpoint of the evaluative dimensions suggests that a computation of the proportion of responses falling into the most positive response category may provide the necessary bench mark. Tables 7, 8 and 9 present these data for each workshop. An anticipated, the workshops of better quality are above the mean percent most positive on almost every item. The impression provided from the percents is similar to the interpretation of the MANOVA yet is a much simpler process. It is a computation presenters could make quickly. A comparison to the average from year one will inform the presenters that they are above or below average. Those below average can make efforts to improve their performance.

Attitude and belief change. The implicit objectives of alcohol education workshops are to increase perceptions of normative pressure to drink responsibly, reduce positive attitudes toward heavy use of alcohol, and moderate intentions to drink heavily. Items on the feedback form designed to assess these objectives were completed by participants immediately before and again immediately after the workshop.

Data from surveys conducted in residence halls suggested that the major attitudinal difference between lighter and heavier drinkers was attitude toward heavier drinking. Therefore, attitudes toward drinking 6 or more beers at a beer party was the measure used to assess workshop effects. Although workshops may have influenced other attitudes, the

TABLE 7

RESPONDENTS RATING PRESENTATIONS IN MOST POSITIVE CATEGORY BY WORKSHOP (IN PERCENT)

WORKSHOP	VERY USEFUL	VERY IMAGINATIVE	VERY RELEVANT	VERY IMPORTANT	VERY MEANINGFUL	VERY CLEAR	VERY GOOD
Bartending	70.8	50.0	75.0	70.8	67.5	70.8	87.0
Legal Implications	60.6	57.6	69.7	72.7	54.5	60.6	57.6
Women & Alcohol	53.7	48.8	61.0	58.8	53.7	75.6	74.4
I'm OK	63.6	45.0	61.9	50.0	52.4	61.9	66.7
Drinking Styles	52.4	38.1	52.4	47.6	57.1	66.7	66.7
Pina Colada	45.0	65.0	60.0	55.0	45.0	45.0	60.0
Stress	24.0	60.9	40.0	48.0	52.0	48.0	44.0
Responsible	22.2	38.9	55.6	61.1	38.9	44.4	38.9
RA Workshop	44.4	14.8	55.6	55.6	33.3	29.6	46.2
Advertising	16.7	25.0	20.8	16.7	20.8	29.2	43.5
Sex Roles	13.5	10.0	33.3	19.6	15.7	33.3	23.5
Mean	41.0	38.9	52.1	48.7	42.3	51.1	53.3

Table 8

Respondents Rating Presenters in Most Positive Category By Workshop (in percent)

Workshop	Very Friendly	Very Involved	Very Concerned	Very Interesting	Very Prepared	Very Clear	Very Intelligent	Very Good
UnBartender	83.3	83.3	75.0	75.0	83.3	70.8	87.5	83.3
Pina Colada	90.0	84.2	90.0	65.0	85.0	65.0	80.0	80.0
Women and Alcohol	87.8	85.4	73.2	70.7	80.5	75.6	75.0	72.5
I'm OK	86.4	81.8	68.2	66.7	81.8	63.3	59.1	59.1
Drinking Styles	76.2	75.0	76.2	71.4	71.4	61.9	52.4	57.1
Legal Implications	81.8	75.8	72.7	51.5	72.7	60.6	72.7	72.7
Stress Reduction	76.9	83.3	69.2	46.2	69.2	57.7	64.0	60.0
Responsible Drinking	83.3	77.3	66.7	50.0	55.6	44.4	55.6	50.0
RA Workshop	66.7	55.6	63.0	46.2	66.7	48.0	40.7	46.2
Advertising	70.8	66.7	41.7	54.2	50.0	58.3	41.7	50.0
Sex Roles	55.8	53.8	36.5	30.8	57.7	42.3	42.3	42.3
Mean	76.3	73.0	64.0	54.9	69.8	58.5	60.1	60.3

TABLE 9

RESPONDENTS RATING OWN PARTICIPATION IN MOST POSITIVE CATEGORY BY WORKSHOP (IN PERCENT)

WORKSHOP	VERY INTERESTED	VERY INVOLVED	VERY TALKATIVE	VERY FRIENDLY
I'm OK	50.0	50.0	40.9	50.0
Advertising	50.0	43.5	39.1	39.1
Pina Colada	50.0	40.0	25.0	45.0
Un-Bartender	58.3	41.7	29.2	29.2
Women and Alcohol	48.8	39.0	24.4	36.6
Stress	38.5	42.3	26.9	34.6
Drinking Styles	52.4	35.0	23.8	28.6
Legal Implications	51.5	30.3	21.2	36.4
Responsible Drinking	44.4	44.4	16.7	27.8
Sex Roles	30.8	15.4	23.1	30.8
RA Workshop	37.0	22.2	00.0	11.5
Mean	45.1	34.3	24.9	33.3

constraints of time and space limited the assessment to a single attitude.

To measure the attitude toward drinking 6 or more beers, 4 potential consequences of drinking 6 or more beers were listed. Pretesting had elicited 3 of these consequences from a group of UNC students -- be in control, have a good time, and be drunk. The fourth, injure myself, was included because some of the workshops attempted to increase awareness of alcohol-related injuries. The evaluation of each consequence was also assessed. In addition, items were included to measure perceived normative pressure to drink 6 or more beers, feelings of personal obligation to drink that amount, and measures of intentions to drink.

The means from before and after the workshop for each measure are included in Table 10. The means are compared with correlated t-tests. One tailed t-tests were used because only positive changes are expected following exposure to workshops. Although the number of comparisons is large, and thus the probability that some of the relationships are due to chance is increased, this approach provides a quick, easily interpreted overview of workshop impact on attitudinal measures.

Examination of the means from the total sample of workshop participants indicates few pre-post differences in response to the items. Importantly, the evaluation of being drunk is significantly more negative and the number of beers respondents expect to drink at a party is significantly reduced. The absolute magnitude of change for both variables, however, is small.

Inspection of the means from each workshop suggests that workshops differed in the variables they influenced. These data are in Table 10 and, to reduce clutter and emphasize the important means, only means with significant changes are tabled. The only workshop with an apparent positive influence on perceived social norms, personal obligation and intention to drink 6 or more beers was "The unbartender". This workshop also influenced

Table 10

Pre-Post Means and Correlated Tests for Attitudinal Items for each Workshop and the Total Sample

Item		Workshop: Responsible Drinking	Bartender	Stress	Legal	Drinking Styles	Pina Colada	Women & Etoh.	R A Workshop	Ads	Sex Roles	I'm OK	Total Sample
Friends Think I should have 6+	Pre		-1.50										-1.47
	Post		-1.83										-1.53
	t		1.78*										
I feel obligated to drink 6+	Pre		-2.25								-1.94		-2.21
	Post		-2.54								-1.65		-2.17
	t		2.29**								-1.77*		
I intend to drink 6+	Pre		-1.58			-1.41							-1.35
	Post		-1.96			-1.23							-1.39
	t		2.10**			-2.16**							
After 6+ I am in Control	Pre								-0.48		-0.71		-0.94
	Post								-1.41		-0.17		-0.97
	t								2.78***		-3.55***		
After 6+ I have a good time	Pre								0.19				0.41
	Post								-0.30				0.36
	t								2.56**				
After 6+ I will be drunk	Pre												1.29
	Post												1.26
	t												
After 6+ I injure myself	Pre												-0.87
	Post												-0.87
	t												
In Control is Bad - Good	Pre		2.67								2.36		2.64
	Post		2.79								2.63		2.63
	t		-1.31*								-1.82*		
A good time is Bad - Good	Pre								2.67				2.71
	Post								2.56				2.74
	t								1.80*				
Being drunk is Bad - Good	Pre	-0.50	-0.88		-0.48		-0.40	-1.17		0.29	-0.23	-0.14	-0.62
	Post	-0.89	-1.25		-1.03		-0.90	-1.51		-0.17	-0.62	-0.68	-0.99
	t	2.72***	1.74*		2.67***		2.24**	2.10**		2.41**	2.27**	2.53**	6.31***
Injury is Bad - Good	Pre										-2.94		-2.87
	Post										-2.81		-2.73
	t										-1.85*		
# of beers at party	Pre			3.48	4.88				3.85			4.82	4.05
	Post			3.15	4.70				3.33			4.68	3.91
	t			1.97*	2.67***				2.10**			1.82*	3.75***
Summary attitude for 6+	pre		-1.04								3.48		0.25
	post		-3.79								6.07		0.27
	t		1.74								-2.91***		

Note: t-test are one tailed Values for t that are underlined are significant in the unexpected direction *p < .05 **p < .01 ***p < .001

the summary measure of attitude but did not affect the number of beers the participants expected to have at a party. Other workshops also had positive impact but the impact was usually limited to one or both of the items significant for the total sample -- either evaluation of being drunk or number of beers expected to drink at a party.

"Sex roles and Alcohol" and "Drinking styles and setting limits" were associated with negative changes on the measure of personal obligation and intention to drink 6 or more beers, respectively. "Sex roles" also had a negative change on the summary measure of attitude toward drinking 6 or more beers. The negative changes associated with "sex roles" could be due to its poor quality. Alternatively, most of its workshops occurred as class presentations; students in these classes did not choose to participate. Therefore, the negative impact and poor evaluations may be due to forced participation.

Summary of Results--Specific Impact Evaluation

Workshops Description and Extent

1. Eleven workshops were developed by students enrolled in a class on the prevention of alcohol abuse.
2. Between March 20, 1979 and April 18, 1979, the workshops were presented 37 times.
3. A total of 416 students participated (247 women and 137 men; 32 did not indicate their sex).
4. Heavier drinkers (those who indicate they drink 5 or more beers at a party) were well represented among the participants (40%).

Participant Response

1. Women tended to have more positive evaluations of the workshops than men.
2. In general, the evaluation of the presentations and the presenters was moderately positive.

Workshop Comparison

1. Multivariate and univariate tests indicate that participants perceived differences between workshops in terms of the quality of the presentation, the presenters and their own participation.
2. To provide feedback on the participant's evaluation of the workshops a count of participants giving the most positive responses on the dimensions evaluating the presentation, the presenters and self-participation is effective.
3. Workshops did not consistently alter attitudes, perceived social influences, or beliefs about heavy drinking. However, the evaluation of being drunk and the intention to drink at a party were changed slightly.

Effect of Workshops on Residence Hall Communities

One objective of the Alcohol Education Program is to foster a "normative mileux" that supports decisions not to drink or to drink moderately. At the same time, abusive drinking is discouraged. It is hoped, therefore, that the workshops, in addition to positive effects on participants, will have noticeable effects on the entire student community.

Many students live, study and eat in residence halls. Moreover, friendships and social programming at UNC frequently centers around residence halls or residence hall floors. Thus, the halls have many features of communities.

As a first step therefore, in the examination of workshop efforts on both participants and nonparticipants, the Campus Alcohol Education Service delivered workshops on selected residence hall floors and subsequently tested for program effects with a post-workshop survey. Floors that received more programming attention were expected to demonstrate more positive change on measures of alcohol use, alcohol-related problems and attitudes toward abusive alcohol consumption.

Evaluation Methodology

Design. Twelve floors in two coed highrise residence halls were randomly selected to participate in the alcohol education program. The number of workshops each floor received was varied. Floors received either no workshops, one workshop or two workshops. Assignment to one of the three study conditions was random with the restriction that both residence halls have two floors in each condition.

To assess workshop effects, surveys were distributed at random to 30 students (15 male and 15 female) on each floor. The first survey was conducted one week before the workshops were started. A second survey using a different random sample was conducted one week after the workshops were completed. Each survey was distributed to 360 different residents by resident advisors or

floor officers. Students were instructed to return completed surveys to their RA. RA's followed up nonrespondents three days after the initial distribution.

Survey instrument. Both the pre and post surveys included items to assess drinking behavior during the post week (problems related to alcohol and alcohol use each day of the week) and items to assess social influence to drink heavily and attitude toward heavy drinking. The post survey also contained items to determine awareness of workshops, interest in future workshops, evaluation of workshops and perceived effects of workshops on alcohol use. A copy of this instrument is attached as Appendix B.

Survey delivery. To elicit cooperation from selected floors, program representatives approached the residence director of both housing units and their resident advisors. A short explanation of the program and what would be required of floors with workshops was provided. The residence directors and resident advisors supported the program enthusiastically and agreed to participate. Because of a previous committment to other activities, a floor randomly chosen as a service floor could not schedule workshops. Instead, it was designated as a control area and replaced by a control floor. All other floors were able to schedule workshops.

Workshops. Four separate workshops were developed and conducted three times each within the selected residence areas. The distribution of workshops and workshop attendance across the two service conditions is outlined in Table 1. As indicated, between 7 and 17 % of the 100 students on each floor participated.

Problems in service delivery. A number of problems that may have had a detrimental effect on program impact occurred during service delivery. First, plans for the residence hall workshops were delayed until late in the semester and then continued to change. These delays and changes inhibited early intervention into the residence halls and planning of the program evaluation. In addition, the changes created confusion among the service and evaluation staffs and may have contributed to some problems with service delivery. Of course, not all of the delays were unavoidable, and many changes reflected pragmatic realities.

Table 1

Distribution of and Attendance at Workshops on Each Floor in the Two Residence Halls

	Hall A						Hall B						Total
Floor	3	4	5	6	7	8	3	5	6	7	8	9	Attendance
Ads	-	-	-	7	-	-	12	-	-	-	-	8	27
Stress	-	17	-	-	-	-	-	-	7	8	-	-	32
Drinking	(12)	(12)[a]	-	-	-	-	-	-	9	-	-	-	21
I'm ok	-	-	-	10	9	-	7	-	-	-	-	-	25
# of Workshops on Floor	1	2	0	2	1	0	2	0	2	1	0	1	105

[a] because of scheduling confusion, one workshop was conducted for both floors 3 and 4. The total attendance of students from both floors is indicated.

A second difficulty was confusion over program schedules. In at least one instance a workshop planned for one floor was promoted on a second floor. Because of poor communication between the residence floor and service staff, the problem did not become apparent until the last minute. RA's from the scheduled floor called confused and upset about the lack of publicity. Although both floors were able to participate in the same workshop, the resulting bad feelings substantially reduced subsequent cooperation and participation by that floor. Better communication should have prevented this mistake and subsequent negative consequences.

Publicity, in general, was a third trouble spot. For the most part, presenters appear to have relied on authority figures and group leaders to induce workshop participation. The "Feedback Form" included an item to assess how participants found out about the workshop. These free response answers were coded and summarized in Table 2. The workshops are divided into two groups. The four that participated in the residence hall program and the seven other workshops. Overall, workshop reliance on leaders and authorities is clear. However, workshops conducted as part of the residence hall program clearly made more use of posters. Even these workshops, however, could have used more door to door announcements or floor posters. Perhaps the most effective strategy, at least for South Campus, would be an announcement flyer for each room. Increased publicity of workshops can only have positive effects on attendance.

Results

Floors in coed residence halls were selected to receive two, one, or no workshops. The effect of workshops on the residence hall community was assessed with pre and post surveys of serviced and nonserviced floors. First, the surveys are examined for evidence of response bias. Next, data from the post-surveys are tested for effects due to the different number of

Table 2

Source of Information About Workshop Presentation

(in percent of total mentions)

Workshop Category	Poster	Presenter	Group Leader[a]	Other	No Answer
4 Workshops in Residence Hall Program	27	13	39	14	6
7 Other Workshops	8	15	47	12	14

[a] includes RA's and RD's, social chairpersons, teachers, and floor officers.

workshops presented. Finally, the data from individuals who participated in workshops and completed the workshops are examined for evidence of positive change as a result of participating in workshops.

Response to survey. Prior to the start of workshops, surveys were mailed to 30 residents (15 female, 15 male) on each of the 12 floors. Of the total 360 surveys distributed, 215 were completed and returned--for a response rate of 59.5%. The post workshop survey was also distributed to 360 different residents, and a return rate of only 37% (133 of 360) was obtained. Table 3 lists the demographic characteristics and drinking status of the survey respondents. Information on the exact distribution of these characteristics in the residence hall population is not available. However, it is known that equal numbers of males and females live on the selected floors and that equal numbers of surveys were distributed to the two residence halls.

Comparison of the pre and post survey respondents indicates several changes in the sample. Females and first year students were more likely to complete the post survey. Conversely, non-drinkers were less likely to respond to the post workshop survey. Finally, and most importantly, there is a noticeable change in the response rates from the two residence halls. Thus, not only was the post survey return noticeably poorer but also the post survey seems to be less representative of the residence hall population. There seems to be two causes of the reduced response rate. First, the post survey was conducted closer to the end of the semester and students were less willing to cooperate. Second, the return was especially poor on floors that either did not receive service or on floors where there were problems with service delivery. Because of these sources of bias, conclusions based on data from the post survey may not generalize to all students in UNC coed residence halls. At best, the data should be considered as only suggestive.

Pre-Post Comparisons. Surveys were distributed before and after workshops to determine if there was a change in the residence hall community following workshops. To determine if change corresponded to the introduction of workshops, three levels of workshop

Table 3

Characteristics of Survey Respondents

(in percent)

Characteristic	Pre-Workshop Survey (215)	Post-Workshop Survey (133)
Return rate	60	37
Sex		
female	53	55
male	47	45
Hall		
A	50	38
B	50	62
Class		
freshmen	40	48
sophomore	29	24
junior	17	16
senior	14	12
Drinking status		
nondrinker	38	30
light/moderate	44	50
heavy	18	19

Note: percents rounded to closest integer.

delivery were included in the design--0, 1 and 2. Thus the evaluation design was a time by workshop (2x3) factorial design. Workshop effects would be indicated by a significant time by workshop interaction. Time by workshops analyses of variance on alcohol consumption and alcohol-related attitudes tested for these effects.

There were no main effects for time. That is, attitudes and behaviors were not significantly different before and after workshops. Similarly, the interaction between time and workshops did not approach significance on any test. Apparently when the hall floor is considered a community, there is no evidence that workshops significantly changed floor behavior or attitudes. Occasionally, main effect tests for number of workshops on the floor were significant. The means indicated that the floors that received two workshops tended to drink more and have more positive attitudes toward heavy drinking than the no workshop and one workshop floors. This effect is of low importance. The main effect indicates that the differences existed both before and after the workshops. Summary tables for selected analyses of variance are contained in Table 4. In sum, inspection of the time by number of workshops analyses suggests few effects due to service delivery. However, these analyses are very stringent. It may be possible to find indicators of treatment effects if data from only the post workshop survey are examined. Specifically, the effect of increased workshops on participation and evaluation of the workshops can be determined. Further, data from workshop participants can be tested for indications of participation effects.

Number of Workshops. At the most basic level an increase in availability of workshops should result in greater awareness of workshops and greater participation. Secondly, with greater exposure, students should rate the workshops more favorably even if they did not attend. Finally, data can be examined for indications of perceived changes due to the workshops.

The post workshop survey included items to assess the awareness that workshops were presented, participation in workshops among survey respondents and the workshop participation by

roommates. Table 5 indicates the response to these items. Clearly, as the number of workshops held on the floor increased, residents became more aware of the workshops, were more likely to attend and more likely to have a roommate attend. This impression is also supported by the data on workshop attendance found in Table 1.

Evaluation of the workshops and interest in the workshops were also assessed with items on the post workshop survey. Inspection of the mean responses to these items suggested that an increase in the number of workshops had positive effects. (See the means in Table 6.) A multivariate analysis of variance confirmed this impression (see Table 7). The corresponding univariate analyses presented in Table 8 indicated that the effect was limited to evaluation of the workshops. Floors with two workshops rated the workshops as significantly better and more pleasant.

The multivariate analysis of items assessing perceived effects of the workshops found no indication for a difference due to more workshops. The analysis is also contained in Table 7.

Overall, the increase in workshop availability from no workshops or one workshop to two workshops appears to have substantial effects on the residence hall community. These effects are evident in awareness of workshops, participation in workshops and evaluation of the workshops. It is likely therefore that an analysis of the respondents that reported workshop participation may indicate even more substantial effects.

Workshop participation. Data from the post workshop survey makes an examination of the effects of workshop participation possible. Students who participated can be compared to students who did not participate. Participants are expected to evaluate workshops more positively, perceive more definite effects from the workshops and demonstrate changes in self-reported alcohol-related behavior and attitudes. Before testing for these effects, however, data are examined to determine the characteristics of students who participated in workshops.

There are two sources of information on who participated. First, responses to the post-workshop survey. Second, data from

Table 4

Summary Tables for a Time by Workshop

Analyses of Variance on Selected Dependent Variables

Dependent Variable Effects		Sums of Squares	df	F	p<
Total Alcohol Consumption					
Time	(A)	70.68	1	2.23	.14
# of Workshops	(B)	369.38	2	5.99	.01
AXB		0.46	2	0.01	.99
Residual		9970.19	315		
Problem Frequency					
Time	(A)	7.37	1	0.91	.34
Workshops	(B)	3.04	2	0.18	.83
AXB		11.63	2	0.72	.49
Residual		2548.84	315		
Attitude--2 Beers					
Time	(A)	5.30	1	0.29	.59
Workshops	(B)	66.69	2	1.84	.16
AXB		30.79	2	0.85	.43
Residual		5644.68	312		
Attitude--6 Beers					
Time	(A)	22.06	1	1.04	.31
Workshops	(B)	152.32	2	3.60	.03
AXB		15.30	2	0.36	.70
Residual		6596.94	312		

Table 6

Means (and Standard Deviations) for Workshop Evaluation and Perceived Effects by Number of Workshops on Floor and by Attendance at Workshops

Item	Workshops on Floor			Attended Workshop	
	0	1	2	No	Yes
Sample Size	20	28	26	57	17
Attend Workshops Next Year	2.25 (0.97)	2.29 (1.30)	2.65 (1.13)	2.25 (1.09)	2.94 (1.25)
Talked About Workshop	3.45 (1.61)	2.89 (1.85)	3.19 (1.98)	2.88 (1.65)	4.06 (2.14)
Workshops were Good	4.20 (0.52)	4.21 (1.23)	5.08 (1.20)	4.25 (0.76)	5.41 (1.66)
Workshops were Pleasant	4.20 (0.77)	4.18 (1.12)	5.19 (1.20)	4.23 (0.68)	5.59 (1.74)
I Drink Less Frequently	3.40 (1.23)	2.71 (1.51)	2.85 (1.56)	3.02 (1.41)	2.71 (1.69)
I Drink Less Quantity	3.50 (1.36)	2.71 (1.51)	2.92 (1.60)	3.02 (1.41)	2.94 (1.89)
Alcohol is used Less Irresponsibly on Floor	3.40 (1.39)	2.14 (1.41)	2.42 (1.53)	2.74 (1.53)	2.06 (1.39)

Table 5

Respondents Who Reported Workshops on Floor, Attended a Workshop and had a Roommate Who Attended a Workshop by Number of Workshops Actually Presented on the Floor (in percent)

Item	Workshops on Floor			$X^2(2)$
(n)	0 (29)	1 (61)	2 (42)	
Workshop on Floor	10.3	45.2	85.4	39.33***
Attended one or more Workshops	3.4	9.8	28.6	10.69**
Roommate Attended a Workshop	0.0	6.6	16.7	6.71*

*** $p<.001$ ** $p<.01$ * $p<.05$

Table 7

Multivariate Analysis of Variance on Workshop Evaluation and Perceived Effects by Number on Floor

Concept	Roots	F	dfhyp	dferror	p<	Canonical Correlation
Evaluation	1-2	2.06	8	136	.043	.437
	1-1	0.40	3	68	.762	.129
Perceived Effect	1-2	1.82	6	138	.100	.367
	1-1	0.26	2	69	.769	.087

Table 8

Univariate Analyses of Variance on Workshop Evaluation by Number of Workshops on Floor

Concept Items	F(2,71)	Mean Sq.	p<
Attend Next Year	0.93	1.24	.401
Talked about Workshop	0.55	1.85	.581
Workshop was Good	5.53	6.36	.006
Workshop was Pleasant	7.43	8.52	.001

Feedback forms collected during residence hall presentations also provide a description of participants. Data from both sources is presented in Table 9. Although only a small number of workshop participants completed a post-survey, the distribution of characteristics from both data sources is very similar. Perhaps the most noteworthy point is that approximately 50% of the participants could be classified as heavy drinkers. The reason for greater attendance among heavy drinkers is not clear. They may be interested in alcohol, concerned about their own use or pressured to come by friends or resident advisers.

Data from the fall Student Alcohol Survey suggested that heavy drinkers were <u>not</u> more or less interested in enrolling in classes on alcohol or attending alcohol workshops. In addition, heavy drinkers knew more about alcohol. Thus, in general, personal interest does not seem to explain greater attendance. With respect to personal concern, data from the fall survey suggested that heavy drinkers were more concerned about their alcohol use. They were more likely to indicate that they thought they might have a problem and that they could become alcoholics. Further, the post-workshop survey found that heavy drinkers who participated drank more alcohol than heavy drinkers who did not participate. Apparently personal concern may account for the greater attendance. The final possibility is coercion from resident advisors. An examination of feedback surveys provides data relevant to this possibility. An item asked participants how they found out about the workshop. Responses typically mentioned resident advisors hall posters or an invitation from presenters (cf. Table 2). Coding these responses and comparing them to the number of beers the participant expected to drink at a party provides an indication of how often RA's influenced the decision of heavy drinkers to attend the workshop. Table 10 presents the proportion of heavy drinkers among participants who mentioned either their RA/RD or posters. For 3 of the 4 workshops, heavy drinkers were more likely to mention posters than RA's as the source of their information on the workshop. Alternatively heavy drinkers may have

Table 9

Characteristics of Workshop Participants (in percent)

Characteristic	Feedback Form (105)	Post-workshop Survey (19)
Participation Rate	13	14
Sex		
Female	50	53
Male	50	47
Class		
Freshmen	44	53
Sophomore	26	16
Junior	18	21
Senior	12	10
Hall		
A	52	41
B	48	59
Drinking Status		
Nondrinker	17	11
Light/Moderate	36	37
Heavy	47	53

Table 10

Sources of Information About Workshop Mentioned by Heavy Drinkers (in percent of total mentions for each source) for each workshop

Source	Workshop				
	Stress reduction	I'm ok	Alcohol Ads	Drinking Styles	Total
RA/RD	41	41	57	40	45
Posters	33	54	83	85	60

been more likely to read the posters. In either event, these data suggest that, if present, coercion was not a major reason for attendance by heavy drinkers. In sum, the available data support the suggestion that heavy drinkers were more likely to attend the workshops because they were concerned about their own use of alcohol.

The awareness that a majority of workshop participants drink heavily affects the interpretation of data on workshop participation. A comparison of participants and nonparticipants is unlikely to suggest positive program effects because participants drink more to begin with. Nonetheless, comparisons between participants and nonparticipants on the post-workshop survey are instructive.

Multivariate analyses of variance similar to those that examined the effects of multiple workshops were conducted to compare participants and nonparticipants on evaluation of workshops, the effects of workshops on perceived floor behavior and workshop effects on self-report behavior and attitudes. Table 11 contains these multivariate comparisons. Only two of the analyses were significant--workshop evaluation and perceived effects. Examination of the related univariate analyses (see Table 12) and means (see Table 6) indicates that participants are more likely to attend next year, talked about the workshops more, and thought the workshops were better and more pleasant than nonparticipants. The univariate analyses of the items assessing perceived effects found no significant effects. The means, however, indicate that participants disagreed more strongly with each item. Apparently they were more confident that workshops did not affect their personal alcohol use or alcohol use on the floor. Finally, the multivariate tests for indications of differences in attitude, beliefs or responsibility of use found no differences between participants and nonparticipants. Perhaps a larger sample of participants would provide more sensitive indicators of potential positive effects.

Table 11

Multivariate Analysis of Variance on Evaluation of Workshops by Workshop Attendance

Concept	Roots	F	dfhyp	dferror	p<	canonical correlation
Evaluation of Workshops	1-1	6.51	4	69	.001	.52
Perceived effect of workshops on behavior	1-1	4.49	3	70	.006	.40
Responsible Use Score	1-1	1.43	7	103	.202	.30
Beliefs and Evaluations	1-1	1.33	14	96	.204	.40
Attitude and Social Influence Total Scores	1-1	1.33	8	102	.239	.31

Table 12

Univariate Tests on Item Group Indicated as Significant in a Multivariate Analysis by Workshop Attendance

Variable	F(1,72)	Mean Sq.	p<
Workshop Evaluation			
Attend next year	4.99	6.34	.029
Talked About Workshop	5.85	18.28	.018
Workshop was good	16.72	17.81	.001
Workshop was pleasant	23.52	24.23	.001
Perceived Behavior Change			
I Drink Less Frequently	0.59	1.27	.447
I Drink Less	0.03	0.08	.857
Less Irresponsible Use of Alcohol	2.68	6.02	.106

Summation

The analyses of service delivery in residence hall communities has examined a range of data.

1) Prepost comparisons on measures of alcohol use and attitude found no indications of significant effects among residents because of exposure to workshops.

2) Residents on floors with two workshops were more aware of the workshops, were more likely to attend, and were more likely to have roommates who attended.

3) Floors that had two workshops evaluated the workshops as better and as more pleasant.

4) Heavy drinkers were more likely to participate in workshops than light drinkers and nondrinkers.

5) Both males and females were equally likely to participate in workshops.

6) Workshop participants evaluated workshops more positively, reported that they were more likely to plan on participating next year, and talked more about the workshops than nonparticipants.

7) Workshop participants were apparently more confident that the workshops did not influence either their behavior or the behavior of others.

8) Attitudes, beliefs, and the responsibility of alcohol use were not affected positively or negatively by workshop participation.

9) More speculatively, it appears that heavy drinkers participate in workshops because they are concerned about their own alcohol use.

Discussion and Recommendations

While the residence hall system appears to be a good enviroment for the study of program impact on alcohol's normative mileux, the survey data collected for the site specific impact evaluation suggest that the spring semester efforts had little influence. However, the data obtained are instructive. Most interesting was the indication that heavy drinkers were well represented among

workshop participants. The apparent self-selection by heavy drinkers has implications for both the interpretation of program effects and for program planning.

Heavy drinkers. The interpretation of workshop effects is confounded by the heavier drinking of many participants. Thus, comparisons to nonparticipants are likely to suggest no effect or, worse, may suggest that workshops promote drinking. In interpretation of the effect of workshops pre-workshop alcohol consumption must be considered and if possible controlled. Control could be achieved through random assignment although that procedure is not practical. Alternatively, use of longitudinal designs where participants and nonparticipants serve as their own control may be recommended.

Program planning must also consider the participation of heavy drinkers in the workshops. Although the heavier drinkers appear to participate because of personal concern, the motivation is only inferred. More direct data on their reasons for participating is necessary. Programs can, then, be developed to ensure that these needs are met. The programs may be developed to deal specifically with drinkers concerned with their own use of alcohol. Perhaps workshops can offer strategies that drinkers can use to promote reductions in excessive dependence on alcohol.

Service delivery. The information obtained through the analysis of feedback forms and postworkshop surveys speaks to the general delivery of services. Specifically, the data indicate ways to make service delivery more effective. Clearly, with increased availability of workshops more students were aware of the workshops, were more favorably impressed and were more likely to attend. Every effort, therefore, should be made to increase the number and frequency of workshops. Related data suggests that posters are an effective means to recruit workshop participants. Presenters should not rely on others (RA's, RD's, teachers, or club presidents) to recruit for them. Each presenter should develop and make available enough workshop announcements to saturate the potential audience. People cannot attend if they don't know the workshop is scheduled.

The scheduling of workshops also is a critical factor. It is important that presenters not be confused or in error about where they are to present a workshop. In last spring's workshops, one mistake generated enough confusion and hostility to substantially alter RA and floor cooperation.

Recommendations

1. Incorporate longitudinal designs into the evaluation strategies.

2. Identify motivations of individuals who attend workshops.

3. Develop programs to deal directly with students concerned about their use of alcohol and to offer strategies to reduce alcohol dependence.

4. Increase intensity of service delivery.

5. Make every effort to ensure that participating floors and groups are not disappointed because of poor service quality and because of confusion in the scheduling of service.

6. Increase reliance on posters to publicize and attract participants and decreased reliance on others--RA's, floor officers, classes--for that job.

7. Make a commitment to long-range planning and to inclusion of CAES's best programs.

Drinking in Residence Halls -- Problems Resident Advisors Encounter

The University of North Carolina Campus Alcohol Education Service has directed many of its programs toward students living in University residence halls. During the first program year, the majority of workshops were conducted in residence halls. Similarly, during the second year of programming, selected residence halls will be chosen for High Intensity Treatment Services (HITS). Thus, to assist program planning, it is important to be aware of the major alcohol-related problems in residence halls, and the most frequent responses to those problems. It is also useful to know which CAES programs are of greatest potential interest to residents and resident advisors. To obtain this information, a short survey was constructed and distributed to resident advisors.

Method

Survey Construction

The survey was developed through a series of interviews with Residence Directors (R.D.'s) and the Director of Residence Life. An initial interview was conducted with two R.D.'s and four of their Resident Advisors (R.A.'s) A general list of the major alcohol-related problems was obtained. In addition, the R.D.'s and R.A.'s made suggestions about the alcohol-education programs they thought were most needed in residence halls. Based on the interview a survey format was constructed and sent to the interviewed R.A.'s and R.D.'s for their comments and suggestions. As

a result of their feedback a revised instrument was developed. This instrument was reviewed by the Director of Residence Life. On the basis of comments during the interview with the Residence Life Director, final revisions were made in the survey.

Contents of Survey

The survey consisted of five major sections. Problems related to alcohol were listed. R.A.'s were asked to indicate the frequency with which each problem occured on their floor (never, once a semester, 2-3 per semester, about 1 per month, 2-3 per month, about 1 per week, more than 1 per week, daily). Section 2 consisted of common responses to problems. The same frequency scale was used. The third section used a 4-point personal interest scale (not interested, neutral, slight interest, strong interest) to indicate interest in 17 potential topics for alcohol education workshops. A forth section in the survey sought information on the R.A.'s use of alcohol and attitudes toward alcohol. Finally, the fifth section determined the R.A.'s sex, race, class, and residence area.

Survey Administration

Surveys were distributed to R.A.s enrolled in a course on the prevention of alcohol abuse. The class member R.A.s were to distribute the surveys to the other R.A.s in each residence hall at the next staff meeting and to collect the surveys as soon as possible and no later than one week. Unfortunately, this process for administering the survey did not work well. Only 22 completed surveys were returned (11 female, 11 male). The total population

is approximately 150 R.A.s. These data, therefore, must be viewed as preliminary and as only suggestive of the major problems R.A.s encounter, their response to problems and their interest in education services.

Results

Problems

The frequency of problem occurrence is listed in Table 1. Frequencies are collapsed into three categories -- never, 1 to 3 per semester, 1 a month or more. The alcohol-related problems that were reported as occurring "1 a month or more" by 50% or more of the responding R.A.s were "missing classes", "excessive noise", "litter", "lack of respect for others" and "vomiting". It is interesting to note that, aside from vomiting, the most frequently reported problems are behaviors that alcohol-use effects indirectly rather than directly. In fact, most of the problems fall into this category.

Responses to problems

In comparison to problems, responses to problems occur much less frequently. Only one response is made by 50% or more of the R.A.s at least once a month -- "tell students to quiet down". Even this response is made less often than the problem is reported. Data on response to problems is found in Table 2.

Another interesting observation is that most responses are only indirectly related to the problems. For example, there is no evidence that R.A.s require students pick up litter, repair damage, or get out of bed to make class. This may be a function of the items included in the survey. But, these items were selec-

PROPORTION OF 22 RESPONDENTS REPORTING AN OCCURRENCE OF AN ALCOHOL RELATED PROBLEM BY FREQUENCY OF OCCURRENCE (in percent)

Problem Related to Alcohol	Frequency		
	Never	1 to 3 per Semester	1 a month or more
Missed classes	0.0	4.8	95.2
Excessive noise	0.0	9.5	90.5
Litter	0.0	13.6	86.4
Lack of respect for others	0.0	36.4	63.6
Vomiting or sick students	9.1	36.4	54.5
Sexual promiscuity	33.3	23.8	42.9
Physical aggression	33.3	28.6	38.1
Property destruction	13.6	54.5	31.8
Depression	22.7	50.0	27.3
Security violations	40.0	40.0	20.0
Problems with roommates	27.3	54.5	18.2
Dangerous stunts	27.3	54.5	18.2
Housekeeping complaints	40.9	45.5	13.6
Lost personal property	45.5	45.5	9.1
Potential medical emergency	54.5	40.9	4.5
Arrested students	77.3	22.7	0.0

TABLE 2

PROPORTION OF 22 RESPONDENTS TAKING SPECIFIED ACTION TO REMEDY AN ALCOHOL RELATED PROBLEM BY FREQUENCY OF ACTION (in percent)

Steps to Reduce Alcohol Related Problems	Frequency		
	Never	1 to 3 per Semester	1 a month or more
Tell residents to quiet down	0.0	31.8	68.2
Provide nonalcohol beverages at parties	9.1	45.5	45.5
Alcohol prevention posters	20.0	60.0	20.0
Talk to R.D.	31.8	54.5	13.6
Stay with intoxicated resident	38.1	52.4	9.5
Express concern to a resident about their drinking	22.7	68.2	9.1
Talk to residents about responsible use of alcohol	45.5	45.5	9.1
Reprimand students for stunts	59.1	36.4	4.5
Stop dangerous stunts	45.5	54.5	0.0
Refer student to Student Health	57.1	42.9	0.0
Limit alcohol at parties	86.4	13.6	0.0
Adopt alcohol use policy	86.4	13.6	0.0
Call police	90.0	9.1	0.0
Confiscate alcohol	95.5	4.5	0.0

ted in cooperation with R.A.s and R.D.s. If direct responses were common, their absence would have been noted by either the R.A.s helping in survey construction or by R.A.s responding.

Interest in Alcohol Education

R.A. interest in topics for alcohol education programs is listed in Table 3. Greatest interest in expressed in workshops on hangovers, party planning, emergency treatment for overdose, nonalcoholic party drinks, information about UNC drinking, and the consequences of arrest for DUI.

Attitudes and demographics

Because of the small sample these data were not examined.

Discussion and Recommendations

The problems listed as the most frequently occuring suggest that workshops need to focus on responsible behavior while intoxicated. This emphasis is in addition to the more common focus on how to consume alcohol responsibly. However, one limitation to the interpretation of these data is that the most frequent problems may not be the most serious. Clearly, for example, one medical emergency may be more important than weekly litter. Data on the relative importance of each problem were not obtained.

To the extent that the frequent behavior problems are at least a nuisance, the alcohol education program may wish to suggest to R.A.s more direct responses to problems. That is, rather than have a workshop on responsible drinking, place contingencies on the consequences of irresponsible intoxicated behavior. Those who litter, for example, should be required to clean up afterwards.

In general, the programs that R.A.s expressed most interest in

TABLE 3

PROPORTION OF 22 RESPONDENTS WITH SLIGHT OR STRONG INTEREST IN SPECIFIED TOPICS FOR PREVENTION WORKSHOPS (in percent)

Topic	slight or strong interest
Hangovers causes and cures	95.5
Planning parties	81.8
Emergency treatment for alcohol overdose	81.8
Party drinks w/o alcohol	77.3
Facts about UNC drinking	72.7
DUI arrest and conviction	68.2
How to drink responsibly	59.1
Physiological and psychological effects of alcohol	59.1
Alcohol and sex roles	59.1
Alcohol education and prevention	36.4
Alcohol and depression	36.4
Personal attitudes toward drinking	31.8
Recognition of alcohol abuse and alcoholism	28.6
Alcoholism treatment	27.3
Confrontation and referal	23.8
Alcohol control policies	4.5

are the ones that students responded to most positively last semester. Party planning and information on nonalcoholic beverages are in demand at all of the colleges with interest in alcohol education. The DUI workshop was one of the most effective last semester. Perhaps its effectiveness was related to student interest in the topic. Last year none of the workshops focused directly on hangovers. High interest in the topic and indications from the Student Alcohol Survey that hangover is the most frequent consequent of alcohol use suggest that workshops specifically on Hangover would be accepted

REFERENCES

Duston, E., Kraft, D. & Zapka J.

The University of Massachusetts Model Program: Evaluation Theory and Process Unpublished manuscript prepared for the National Institute on Alcohol Abuse and Alcoholism, 1979.

Fishbein, M. & Ajzen, I., Belief, Attitudes, Intention and Behavior: An Introduction to Theory and Research, Reading, Mass.: Addison, 1975.

Green, L. W. et. al., Guidelines for Health Education in Maternal and Child Health, International Journal of Health Education, Supplement to Vol. 21, number 3, July-September, 1978.

McCarty, D., Morrison, S. & Bornstein, S., Important Consequences and Referents for Selected Drinking Behaviors, Campus Alcohol Education Service working paper 78-05 University of North Carolina, Chapel Hill, 1978.

McCarty, C. Morrison, S. Bornstein, S. & Mills, K.C., The Student Alcohol Survey, unpublished survey, University of North Carolina, Chapel Hill, 1978.

McCarty, D., Mills, K.C., Morrison, S. & Bornstein,S., The Student Alcohol Survey: User's Manual, Campus Alcohol Education Service working paper 78-03, University of North Carolina, Chapel Hill, 1978.

Mills, K.C., Davis G., Whiteside, J. & McCarty, D., A Comprehensive Peer Educator Training Manual for Adult Alcohol Education, Campus Alcohol Education Service, University of North Carolina, Chapel Hill, 1978.

National Institute on Alcohol Abuse and Alcoholism, First Special Report to the U.S. Congress on Alcohol and Health, Wash. D.C.: U.S. Government Printing Office, 1971.

National Institute on Alcohol Abuse and Alcoholism, Second Special Report to the U.S. Congress on Alcohol and Health, Wash. D.C.: U.S. Government Printing Office, 1974.

National Institute on Alcohol Abuse and Alcoholism, Third Special Report to the U.S. Congress on Alcohol and Health, Wash. D.C.: U.S. Government Printing Office, 1978.